















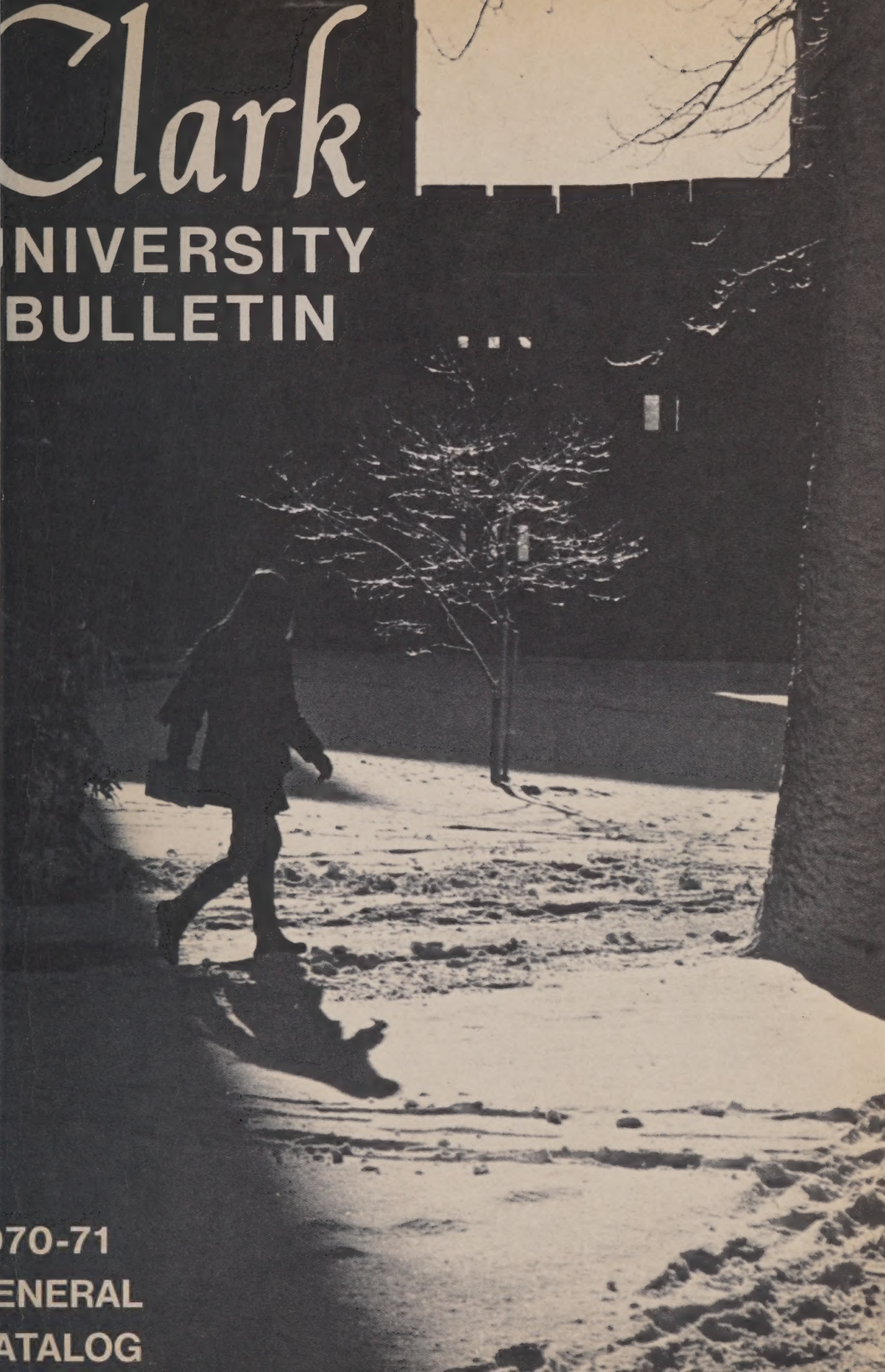
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# Clark

UNIVERSITY  
BULLETIN

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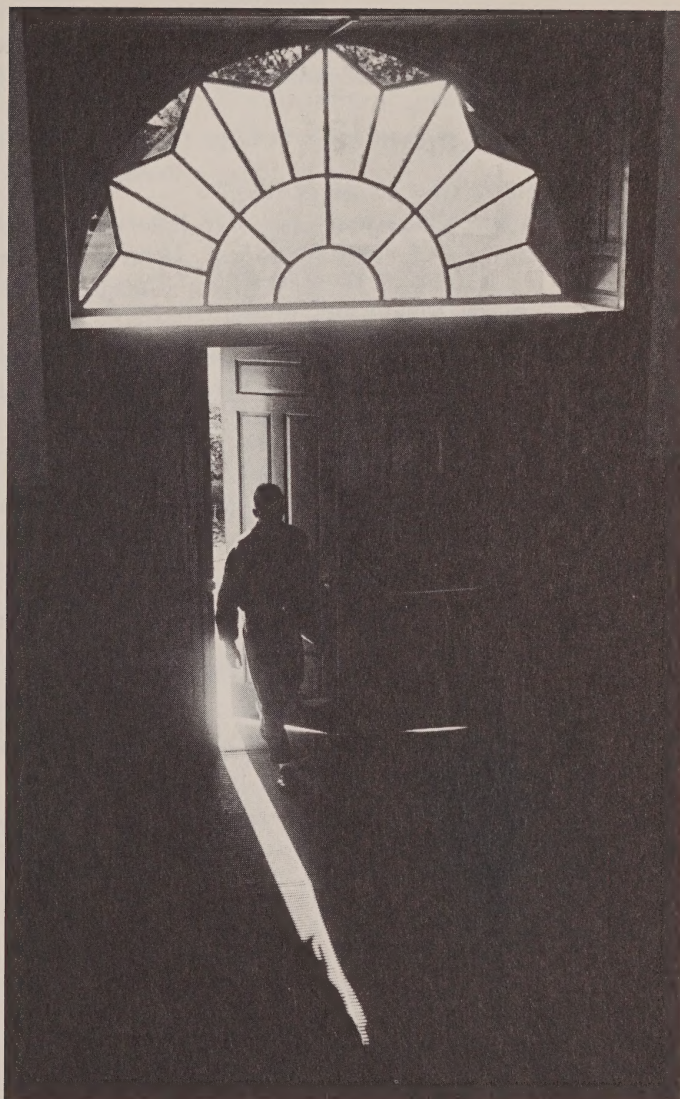




The New England Association of Colleges and Secondary Schools accredits schools and colleges in the six New England states. Membership in one of the six regional accrediting associations in the United States indicates that the school or college has been carefully evaluated and found to meet standards agreed upon by qualified educators. Colleges support the efforts of public school and community officials to have their secondary school meet the standards of membership.

AUGUST, 1970 NUMBER 311

The Clark University Bulletin is published four times a year, in April,  
July, August and September  
Second-class postage paid at Worcester, Massachusetts.



# Clark University Bulletin

WORCESTER, MASSACHUSETTS 01610

## General Catalog 1970/71

## Additional Information

Persons interested in other information about Clark University should address the appropriate officer of administration listed below:

|                                       |                                                                                            |
|---------------------------------------|--------------------------------------------------------------------------------------------|
| <i>General University Affairs:</i>    | Dr. Glenn W. Ferguson<br>President                                                         |
| <i>General Academic Affairs:</i>      | Dr. Jefferson A. White<br>Dean of Undergraduate<br>Academic Affairs                        |
| <i>Undergraduate Student Affairs:</i> | Dr. Marcia A. Savage<br>Dr. William E. Topkin<br>Deans of Undergraduate<br>Student Affairs |
| <i>Admission to the College:</i>      | Mr. Richard W. Pierson<br>Director of Admissions                                           |
| <i>Financial Aid:</i>                 | Mr. Robert M. Kidd<br>Director of Financial Aid                                            |
| <i>Graduate School Affairs:</i>       | Dr. Saul B. Cohen<br>Dean of Graduate School                                               |
| <i>Evening College Affairs:</i>       | Mr. Thomas J. Dolphin<br>Director                                                          |
| <i>Summer School Affairs:</i>         | Dr. Neil R. Schroeder<br>Director                                                          |
| <i>Alumni Affairs:</i>                | Mr. James D. Van Houten<br>Director of Alumni Affairs                                      |
| <i>Records and Transcripts:</i>       | Mr. Gerard T. Corcoran<br>Registrar                                                        |
| <i>University Address:</i>            | 950 Main Street<br>Worcester, Massachusetts 01610                                          |
| <i>University Telephone:</i>          | Area Code 617<br>Telephone 793-7711                                                        |

Clark University reserves the right to amend any administrative policy described in this Catalog without prior notice to persons who might thereby be affected. Information about expenses applies to the academic year, 1970-71.



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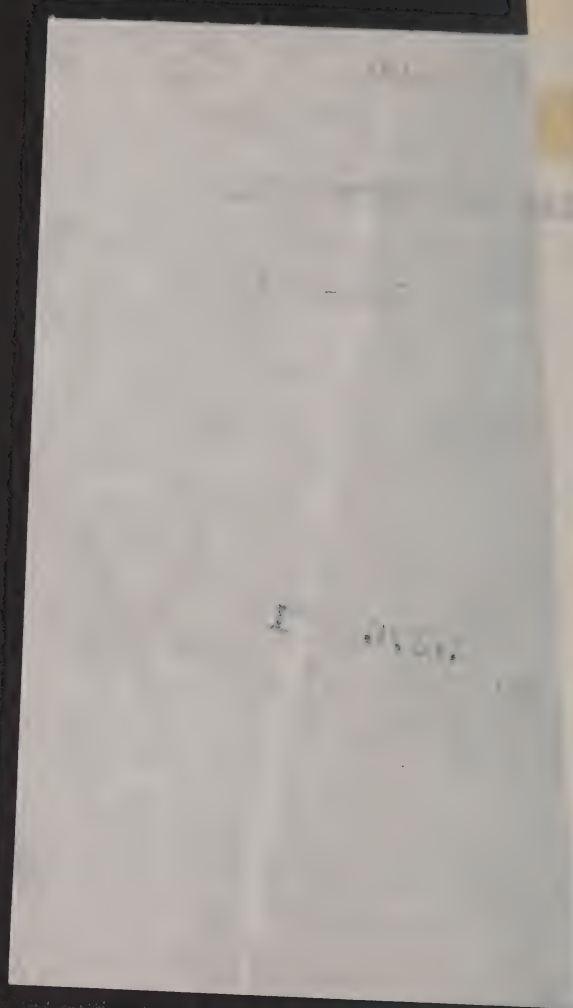
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CLARK UNIVERSITY CATALOGUE

1970-1973

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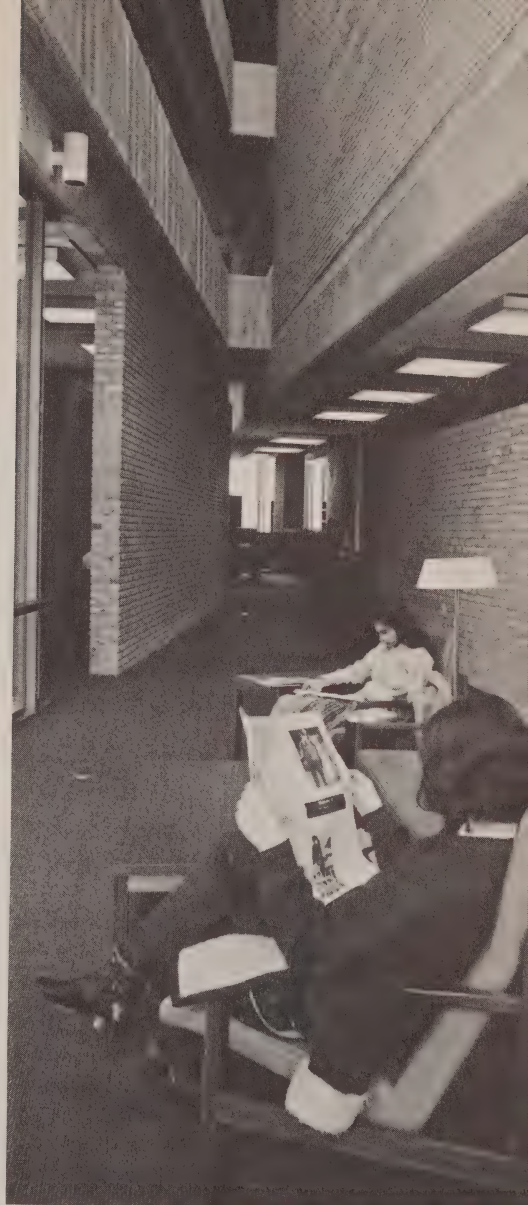
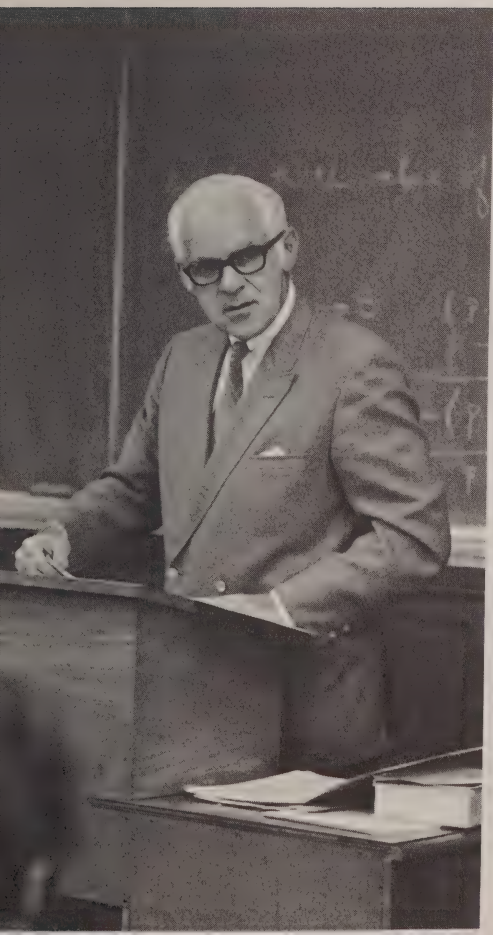
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## THE UNIVERSITY

## General Information

|                           |                                                                                                                                                                                                                          |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Corporate Name:</i>    | Trustees of Clark University                                                                                                                                                                                             |
| <i>President:</i>         | Dr. Glenn W. Ferguson                                                                                                                                                                                                    |
| <i>Incorporation:</i>     | 1887                                                                                                                                                                                                                     |
| <i>Function:</i>          | Independent university of liberal arts<br>for men and women                                                                                                                                                              |
| <i>Degrees Conferred:</i> | Bachelor of Arts<br>Bachelor of Fine Arts<br>Bachelor of Science in General Studies<br>Master of Arts<br>Master of Arts in Education<br>Master of Business Administration<br>Doctor of Education<br>Doctor of Philosophy |
| <i>Day Enrollment:</i>    | 2,033                                                                                                                                                                                                                    |
| <i>Faculty:</i>           | 149                                                                                                                                                                                                                      |
| <i>Endowment:</i>         | Book Value \$10,520,280<br>Market Value: \$13,626,596                                                                                                                                                                    |
| <i>Library:</i>           | 285,000<br>50,000 maps and charts                                                                                                                                                                                        |





# The University

Clark University is a small urban, independent, co-educational university of liberal arts and business administration, founded in 1887. With a current enrollment of 1,600 undergraduates—900 men and 700 women—and 540 graduate students, the University is situated on a compact 35-acre campus in Worcester, the second largest New England urban center.

The University's activities include undergraduate programs leading to the bachelor's degree in the arts and sciences, graduate study to and beyond the doctorate, and university-level educational programs for area adults. These activities are carried on by four divisions: The College, The Graduate School, The Evening College and The Summer School.

As an institution, Clark is committed to scholarly excellence and intellectual creativity, faith in the ideals of liberal undergraduate education, a concern for graduate education and the values inherent in the small university. These beliefs underlie everything the University is or does, and in combination are the essentials which give Clark a unique position among the more than 2,000 colleges and universities in America.

In practice, the fact that the University has by design remained small in numbers in an age of giant universities has enabled Clark to offer its students a rare educational experience. Through a close association and partnership between the College and the Graduate School, the University effectively combines some of the best features of the small liberal arts college with the scholarly research and advanced programs of the university, to the advantage of both levels.

This exposure is enhanced further by the close personal relationships maintained at Clark between and among faculty, undergraduates and graduate students.

The College seeks to provide its students with essential knowledge and understanding through concentration in one of eighteen fields of study and the selection of a variety of courses in related or other disciplines. In the Graduate School, the Master's degree is offered in fifteen areas, and doctoral programs are available in eleven fields. A student can receive instruction leading to the Doctor of Philosophy degree in biology, chemistry, chemical physics, economics, geography, history, international relations, mathematics, physics, and psychology. A Doctor of Education degree also is offered. Master's degrees can be obtained in these fields and also in business administration, English, government, and sociology. The undergraduate may take courses in these





Dr. Glenn W. Ferguson  
President of the University

fields, except business administration, and, in addition, in anthropology, classics, comparative literature, computer science, fine arts, German, geology, linguistics, music, philosophy, Romance languages, and Russian.

For the superior undergraduate, there are many opportunities to observe and participate in research. Some departments have regular programs through which outstanding undergraduates take advanced courses and participate actively in the research of the department.

For undergraduates, the College offers on an optional basis a three-week January Study Period during which students have an opportunity to enroll in a number of special projects which involve independent work with a minimum of faculty guidance. Several foreign study trips are also available during this period.

The University's insistence on high academic achievement, together with its unique interrelationships between the undergraduate and graduate programs, accounts in large measure for the fact that over fifty percent of the graduates of the College continue their education at graduate or professional schools. It accounts, too, for the fact that a number of Clark's graduates have earned Woodrow Wilson and Danforth Fellowships, Fulbright grants and other national awards for graduate study.

Most important, these accomplishments are significant reflections of the scholarly teaching and productive research of the Clark faculty. Over eighty per cent of its members hold the Ph.D. degree, a ratio which is among the highest in the nation. In the past few years, the faculty has published several hundred scholarly articles and has written a number of books.



In addition to its excellent academic programs, Clark University offers its students many opportunities for rewarding experiences in broad programs of co-curricular and athletic activities—both organized and informal—as well as in cultural activities of high quality both at the campus and within the Worcester community.

Admission to Clark is highly competitive, and is based on non-discriminatory standards. Tuition and other charges for 1970-1971 are approximately \$3,650, including \$2,450 for tuition and about \$1,200 for room and board. Nearly one-half of the students receive financial aid in the form of scholarships, grants, loans or part-time employment.

## The University's History

Clark was founded in 1887 as the nation's second graduate school by Jonas Gilman Clark, a Worcester merchant and businessman, and Dr. Granville Stanley Hall, the university's first president, who had been a professor of philosophy, psychology and education at The Johns Hopkins University, the nation's first graduate school.

The undergraduate segment of the University, Clark College, was established for male students in 1902. At that time the faculties of the Graduate School and the College were separate; in 1920 the undergraduate college and the Graduate School were united, and there followed a period, under President Wallace Walter Atwood, of significant educational and physical changes. The original three-year bachelor's curriculum was increased to four years; the Graduate School of Geography was founded; additions were made to the physical plant including a men's dormitory, an athletic field, gymnasium, library tower and an auditorium; and the University became coeducational in 1941.

President Atwood was succeeded in 1941 by President Howard B. Jefferson. Under President Jefferson, Clark established a chapter of Phi Beta Kappa; the Evening College was organized; the Heinz Werner Institute of Developmental Psychology was founded; eleven new buildings were built, including two residential complexes and the Robert Hutchings Goddard Library; and a half-dozen new academic programs were established.

Dr. Jefferson retired in 1967 and was succeeded by Dr. Frederick H. Jackson. Clark, like many colleges and universities throughout the nation, has undergone a period of transition and introspection during President Jackson's three years at the University. In 1969 the University Planning Council, composed of students, faculty, administrators, alumni and friends, was established to set the University's goals for the next 10 years. In addition, during his tenure at Clark, Dr. Jackson was instrumental in creating the Worcester Consortium of Higher Education, a federation of Greater Worcester's 10 colleges.

Dr. Jackson announced his resignation in the fall of 1969, effective July 1, 1970, to accept the position of executive director of the Committee on Institutional Cooperation, an association of the Big Ten Universities and the University of Chicago. He has been succeeded by Dr. Glenn W. Ferguson, formerly chancellor of Long Island University and U.S. ambassador to Kenya from 1966 to 1969.





## The University's Community

Worcester, the second largest city in Massachusetts with a population of about 180,300, is in the midst of an \$85 million redevelopment project in the center of the city. A somewhat typical New England manufacturing city in appearance, Worcester is nevertheless unique in the number of educational and cultural institutions located within its boundaries and immediate suburbs.

These institutions have been organized into the Worcester Consortium for Higher Education, Inc. Students in Consortium colleges may participate in special educational, cultural and social endeavors provided by member institutions, including study in credit courses. The 10 colleges participating in the Consortium are Anna Maria College, Assumption College, Clark, Holy Cross College, Worcester Polytechnic Institute, Worcester State College and Becker, Leicester, Quinsigamond and Worcester Junior Colleges. In addition to the colleges, a group of associated institutions participate with the Consortium in providing further enrichment to college curricula. These institutions are the Worcester Art Museum, known nationally as one of the finest small museums in America; the Worcester Historical Society; the American Antiquarian Society; the Worcester Foundation for Experimental Biology, world-famous for its role in developing the birth control pill; the Worcester Craft Center; Old Sturbridge Village; the Worcester Science Museum; and the University of Massachusetts Medical School.

Worcester is one hour by car from Boston, three hours from New York City, and within a few hours drive of New England's many winter and summer resort areas.

## The University Campus

Clark University is an urban institution, located two miles from Worcester's business center. The University's 25 major buildings are situated on a 35-acre campus. Near the campus are athletic fields and the 20-acre Hadwen Arboretum.

### *Clark Hall*

The first building erected on the campus was Jonas G. Clark Hall, a four-story granite and brick structure. Built in 1887, it houses the offices of the Evening College, the Placement Office, and many of the offices and classrooms of the departments of instruction.

### *Science Building*

Clark's second oldest building is the Science Building, built also in 1887. It was the site of the experimentation and research by Dr. Robert H. Goddard, "Father of the Space Age," and Dr. Albert A. Michelson, America's first Nobel Prize winner. The building has been remodeled to provide new research and instruction facilities for the Biology and Physics Departments.

### *Jeppson Laboratory*

Jeppson Laboratory, completed in 1958, has modern research and instruction facilities for the Chemistry Department, and houses Johnson Auditorium, a multipurpose lecture hall seating 174 persons, and Kraus Library, a specialized collection of chemical periodicals.

### *The Goddard Library*

The University's new library, named for Dr. Robert H. Goddard, houses the University's collection of more than 285,000 volumes and has about 1,000 individual reading areas.

### *Atwood Hall*

Atwood Hall contains an 800-seat auditorium, the Blue Room for smaller lectures and meetings, and the offices and classrooms of the Fine Arts Department.

### *Geography Building*

Site of America's first Graduate School of Geography, the Geography Building also houses the offices of the President, Executive Vice President and other administrative officers. It also quarters the editorial offices of *Economic Geography*, a quarterly publication of Clark University.

The Departments of German, Music, Mathematics and Russian are located in Estabrook Hall.

*Estabrook  
Hall*

Alumni Gymnasium provides a gymnasium seating 800 persons, shower and locker facilities for intramural and intercollegiate athletics, and the offices of the Department of Physical Education. On the second floor is the Alumni Office and Alumni Lounge, a comfortable meeting room for University organizations.

*Alumni  
Gymnasium*

Completed in 1959, this dormitory for 200 men has both double and single rooms.

*Wright  
Hall*

Bullock Hall, a women's dormitory, also completed in 1959, houses 137 women students.

*Bullock  
Hall*

The first major addition to the campus under Clark's ten-year development program, this center, opened in 1964, includes Johnson Hall, a co-educational dormitory for 150 students, Sanford Hall, which houses 146 men, and the Homer P. Little Student Commons building, which contains dining facilities, lounges, and meeting and recreation rooms.

*Downing  
Residence  
Center*

A second residence complex, named in honor of Mr. Charles A. Dana of Bridgeport, Conn., opened in September, 1967. The center includes Hughes Hall, a dormitory for 150 women, a dormitory for 146 men and Dana Commons, a student center, with dining facilities and offices for student organizations.

*Dana  
Residence  
Center*

Jefferson Hall, opened in 1959, houses one of the University's dining halls, a snack bar, student lounges, a recreation room, and the University Bookstore.

*Jefferson  
Hall*

The Downing Street administrative building houses the offices of Admissions, the Deans, Registrar, Bursar, Treasurer, Business and Public Relations. The Philosophy Department also is located in this building.

*Administrative  
Building*

Near the main campus is the Conference Center, with comfortable rooms for university meetings and functions.

*Conference  
Center*



## The Robert Hutchings Goddard Library

Tilton M. Barron, *Librarian*

Paul S. Clarkson, *Curator of Special Collections*

Marion Henderson, *Reference Librarian*

Elizabeth Hassinger, *Catalog Librarian*

Thomas V. Mongeon, *Circulation Librarian*

Irene Walch, *Assistant Reference Librarian*

Jean F. Perkins, *Assistant to the Librarian*

The University's new Library contains over 285,000 volumes and some 50,000 maps and charts. The major part of the collection is centrally housed, and an open shelf system fosters free access to books and periodicals. Chemistry periodicals are available for reference at the Kraus Library in Jeppson Laboratory.

The collection reflects the history and growth of the University. The combined scholar's library of the early graduate school and the undergraduate library of Clark College have been developed through the years to serve the academic needs of the University. The richest holdings are in the fields in which graduate work has been offered for some years—biology, chemistry, economics, education, geography, government, history, international relations, mathematics, physics, psychology, and sociology. More characteristically undergraduate in content are the collections dealing with music, fine arts, language, literature, religion, and philosophy. The Library pays particular attention to major bibliographical and reference tools, and annually receives over 1,500 periodicals. The acquisition and exchange of material is coordinated with other libraries in the Worcester area.

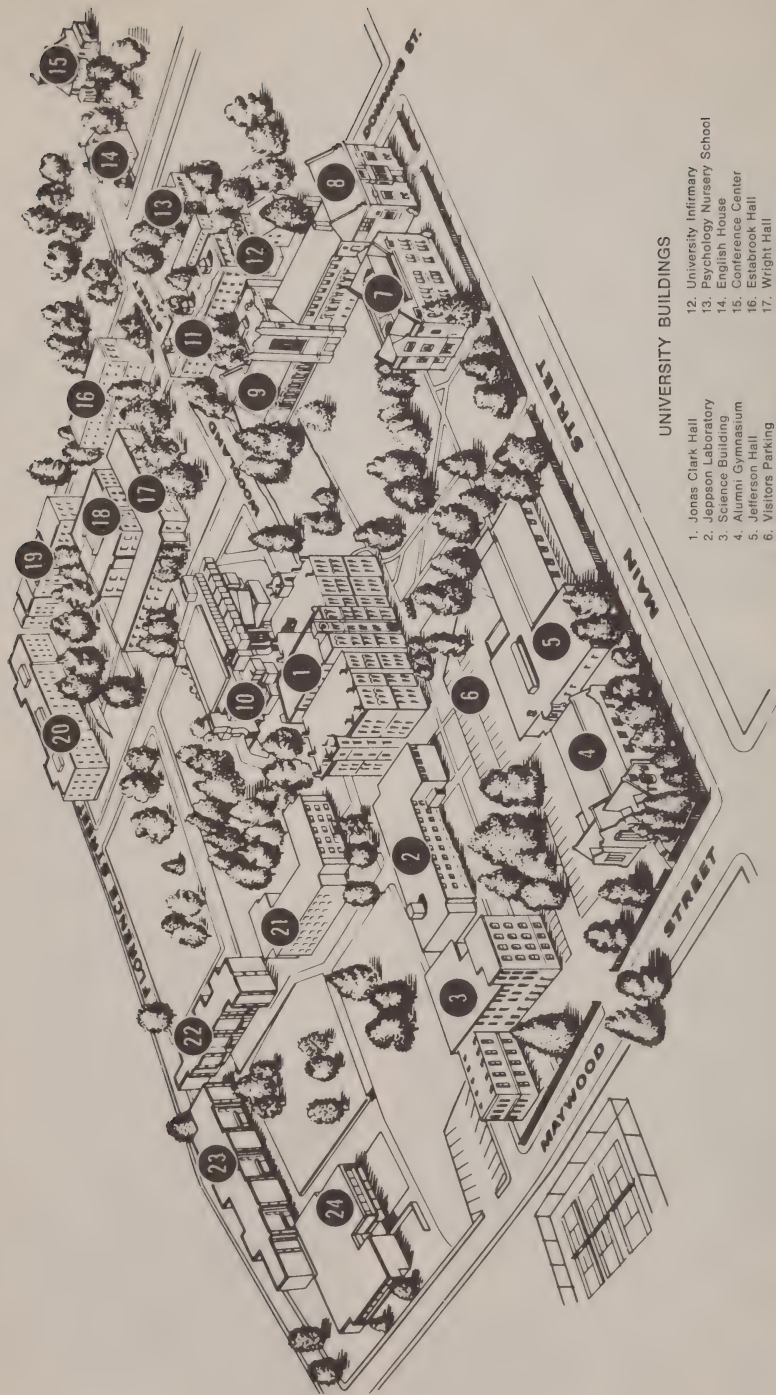
The Robert Hutchings Goddard Library provides unusually fine quarters for the utilization of these collections. Completed early in 1969, the new building has a potential capacity of 600,000 volumes and accommodations for more than 1,000 readers, of which 65 per cent are individual study desks. Among its features are the Goddard collection and exhibit area; the Wilson Rare Book Room; special facilities for art books, record listening and microtext reading; student and faculty lounges; and an after-hours reading room.

The building is named in honor of, and as an international tribute to, Dr. Robert H. Goddard, Father of the Space Age, distinguished alumnus, and professor of physics at Clark from 1914 to 1942.





# Clark University



## UNIVERSITY BUILDINGS

1. Jones Clark Hall
2. Johnson Laboratory
3. Science Building
4. Alumni Gymnasium
5. Jefferson Hall
6. Visitors Parking
7. Geography Building
8. Geography-History-Economics Center
9. Atwood Hall
10. The Robert Hutchings Goddard Library
11. Downing Administration Center
12. University Infirmary
13. Psychology Nursery School
14. English House
15. Conference Center
16. Estabrook Hall
17. Wright Hall
18. Little Commons
19. Sanford Hall
20. Johnson Hall
21. Bullock Hall
22. Hughes Hall
23. Dana Men's Dormitory
24. Dana Commons



# The University's Recent Development and Future Plans

During recent years, in a period when higher education has been confronted with unprecedented challenges, Clark has moved ahead in accordance with comprehensive yet flexible plans and an ambitious program for their achievement. The University's objectives, defined in the course of a thoughtful self-study completed in 1961, take into account both Clark's unusual history and traditions, and the critical national need for expanded educational opportunities.

In pursuit of these goals, in 1962 the trustees established THE CLARK PROGRAM, a comprehensive, ten-year development effort to secure nearly \$21 million in new resources by 1972. Nearly \$16.5 million has been secured and the University has been strengthened by an additional endowed professorship, the Robert Hutchings Goddard Library, two \$2.5 million residential centers, a new central heating plant, and a number of other significant additions to its physical and financial resources.

Recognizing the need to extend and update University plans in the light of progress and changing conditions, in 1969 the trustees organized a 130 member University Planning Council. Broadly representative of faculty, students, alumni, trustees, staff and friends of the University, the Council brings the wisdom and support of all segments of the University to a comprehensive planning effort to be completed in late 1970. From the Council's deliberations, it is anticipated that a new long-range plan for Clark's development during the seventies will be established. As a foundation for that plan, the Council has tentatively adopted assumptions which reaffirm Clark's commitment to the advantages of institutional smallness; its concern for excellence in scholarship, teaching, creative activity and research; and its primary goal of conducting, at the highest level of quality possible, the particular kind of educational programs and scholarly activities for which its small size and traditions make it uniquely suited. In addition, the assumptions anticipate increased sharing of resources and appropriate participation in the governance of the University by all its elements.

## *Bequests and Deferred Gifts To The University*

Bequests have always been, and will continue to be, an extremely important means of ensuring the continued growth and strengthening of independent educational institutions such as Clark University. For persons who wish to provide for the University in their estate plans, the following basic legal forms are presented with the suggestion that they be reviewed by an individual's legal counsel. Other forms are available upon request to the Office of the President.



### *Unrestricted Bequest*

"I give, devise and bequeath to Trustees of Clark University, a Massachusetts charitable corporation, located in Worcester, Massachusetts (Here insert the amount of money and/or describe the personal property or real estate)."

### *Restricted Bequest*

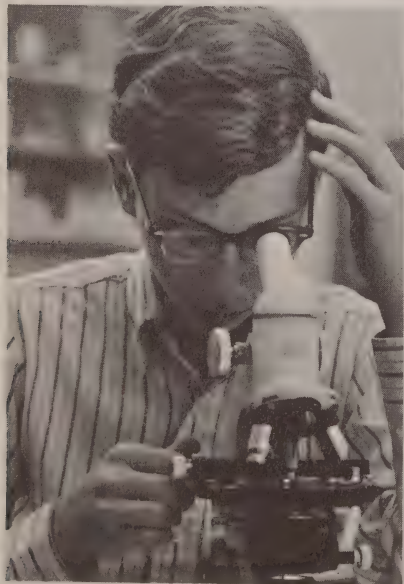
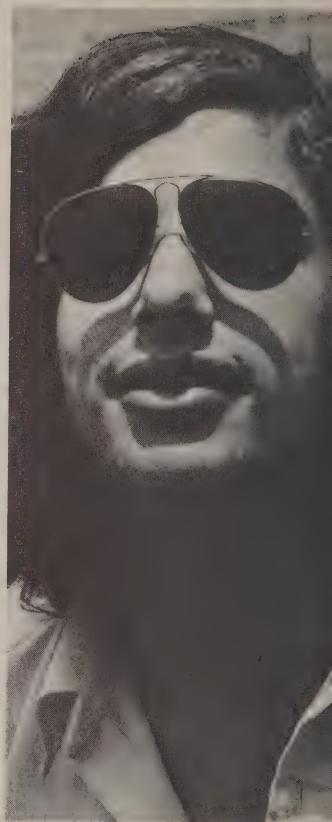
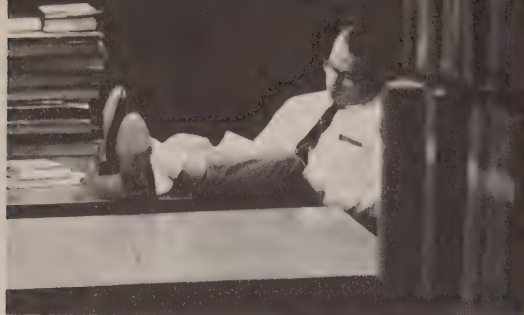
"I give, devise and bequeath to Trustees of Clark University, a Massachusetts charitable corporation, located in Worcester, Massachusetts (here describe the gift to be used or the income to be used) for the following purposes (here specify the purposes for which the gift or the income therefrom is to be used).

In addition to legacies, there are other methods of providing for the University in estate plans. Gift Annuities, Life Income Plans, and Trusts, as defined in the Tax Reform Act of 1969, are available at Clark through its Deferred Gift Program. Specific information regarding methods of giving and tax implications under the new law may be obtained by writing to the office of the President. The University will be glad to consult, on a strictly confidential basis, with individuals and their counselors about these and other ways of enriching the University.

For purposes of making a gift by will to Clark, the University's legal corporate title is: TRUSTEES OF CLARK UNIVERSITY.









## THE UNDERGRADUATE COLLEGE



## The Academic Programs

### *Liberal Arts*

The liberal arts curriculum provides for breadth of knowledge and understanding together with the intellectual discipline resulting from concentration in a selected field. The Bachelor of Arts program at Clark possesses a large degree of flexibility permitting adaptation to a wide variety of individual interests.

### *Principles of Liberal Education*

Liberal education seeks to develop human beings who have a sense of personal identity, who are equipped and motivated to realize their intellectual potentialities and who are able to contribute to their own welfare and the welfare of others. This often involves a lifetime of learning, but a liberal arts college in a university can and should make a significant contribution to the attainment of such goals.

To have a sense of identity is to understand oneself as an organism in the natural and physical world, as a product of a particular civilization or society and as a person caught up in all the joys, sorrows and perplexities of the human condition. Naturally, no course or combination of courses can insure such understanding and there is no schooling that can guarantee wisdom, but there are courses in almost every field which can make a genuine contribution to this personal educational goal.

Self-realization or the actualization of one's potentialities depends in the first instance on the acquisition and improvement of fundamental skills of language, reasoning and communication. Without these skills, it is not possible either to expand one's intellectual horizons or to master a particular intellectual discipline, pursued for its own sake or for extrinsic professional or vocational reasons. Mastery of one's own language should be matched by competence in at least one other language, and to understand the processes of reasoning in many disciplines a knowledge of mathematics including the calculus is essential. Intellectual development and understanding also rest to a great extent on an appreciation of the various methods by which knowledge is acquired, theories and hypotheses are tested and judgments are evaluated. To gain this appreciation, a student should take courses which involve various modes of inquiry, e.g., the historical approach, the experimental method, logical, textual or linguistic criticism, systems analysis and intuitive insight.



It will be difficult for a student to take such courses without at the same time familiarizing himself with important ideas in each of the traditional divisions of knowledge, the physical sciences, the social sciences and the humanities.

Communication of ideas and feelings is surely not the monopoly of language, literature and mathematics, and, therefore, one should also be familiar with the expression of ideas and feelings in music and the fine arts. It has been argued, indeed, that the arts provide an insight into "reality" that is just as valid as that provided by the sciences. In any event, one cannot realize one's potentialities for intellectual and aesthetic enjoyment without exploring one or more of these artistic areas.

To contribute to one's own welfare usually demands the choice of a vocation that is rewarding psychologically or financially or both. A liberal arts education does not become illiberal when it recognizes this fact and provides opportunities for intensive work in areas which may lead to vocational involvement or when it prepares students well for graduate and professional schools. But this emphasis on pre-professional training should always be balanced by courses which emphasize the interrelationships of fields of knowledge and the values which undergird the whole intellectual enterprise and all of human society.

To suggest a concern for the welfare of others naturally implies some value judgments that are inherent in liberal education. It is to assert that a liberally educated person will assume some responsibility in public and community affairs, and that he will contribute certain analytical abilities, specialized knowledge and mature judgment to the solution of the problems of society. To prepare for this role, a person should be familiar with some basic concepts in the social sciences and should have had some experience in problem solving and in making hard choices among alternative courses of action.

It should be re-emphasized that liberal learning is a life-time pursuit, but a student may take a giant step toward the goals of liberal education by a judicious and wide-ranging choice of courses in college. In the atmosphere of freedom which Clark University seeks to promote, this choice is left primarily to the student, who is urged to take advantage of the many opportunities offered by the University.

- Groups* Course credit may be obtained at the undergraduate level in the following fields of instruction which, for administrative purposes, are known as "groups."
- Group A. Science and Mathematics:* Biology, chemistry, experimental psychology, geology, mathematics and physics.
- Group B. Social Sciences:* Economics, education, geography, government, history, international relations, linguistics, philosophy, psychology and sociology.
- Group C. Language and Literature:* Greek, Latin, English, French, German, Spanish, Russian, and comparative literature.
- Group D. Fine Arts:* Art, music, and theatre arts.
- Majors* A student may major in biology, chemistry, classics, economics, English, geography, German, government, history, international relations, mathematics, music, philosophy, physics, psychology, Romance languages, or sociology. A major in fine arts is offered through a cooperative program with the School of the Worcester Art Museum. A major in theatre art is offered through a program given in cooperation by Clark University, the College of the Holy Cross, and Assumption College. Courses in education, geology and Russian are offered, but majors are not available.
- Induction* Freshmen and transfer students must attend an induction program held on the campus for several days before the academic year begins. During this period, placement examinations and other tests are given and students attend individual and group conferences in preparation to register for a program of studies.
- Academic Advising* At induction and during the freshman year, students are provided the opportunity to meet in groups and individually with faculty members in order to obtain advice regarding course program and related matters. A particular faculty adviser may be assigned upon request. Toward the end of the freshman year students are asked to indicate intended major and their preference for adviser from the major department, and advising responsibility at that point is assumed primarily by the various academic departments. Ample opportunities for academic and other advice are available for those students seeking it.

Each student is required to register for a specific program of courses at the start of every semester. The student is given notice in advance of the dates on which registration is required. Failure to register within the announced period occasions a late registration fee.

### *Registration*

Placement in advanced courses is determined by individual performance on special departmental placement examinations or, in some instances, on the Advanced Placement and Achievement Tests of the College Entrance Examination Board. College credit for certain courses completed in high school may also be granted toward the bachelor's degree on the basis of the College Entrance Examination Board Advanced Placement Tests.

### *Advanced Placement*

The undergraduate normally carries a full program of from 12 to 17 semester hours inclusive each semester. In general, a course meets three times weekly. Laboratory periods are usually three hours long. Students should consult their faculty adviser or major department when questions of course or program selection arise. Permission to carry a reduced or expanded program must ordinarily be secured from the College Board.

### *Normal Programs*

Freshmen may choose any course designated by the letter "F."

### *Undergraduate Programs*

Sophomores may elect any course designated by numbers beginning with the numeral 1, indicating the course is primarily for undergraduates. They are not admitted to courses designated by numbers beginning with the numeral 2, except by permission of the instructor and the department chairman concerned, to whom the student must present evidence of high class standing and/or adequate preparation.

Juniors and seniors may elect any courses designated by numbers beginning with 1 or 2, indicating courses which are primarily for undergraduates or for advanced undergraduates and graduate students. The selection by juniors and seniors of these courses is subject to any conditions stated in the course description.

Under special conditions and with the approval of the Chairman of College Board and the Dean of the Graduate



School in each case, seniors who rank in the upper third of their class may be admitted to courses designated by numbers beginning with the numeral 3, indicating courses which are primarily for graduate students.

*January  
Study Period*

A three-week period immediately following the mid-year recess is set aside for special projects and independent study, both on and off the campus. Programs of extracurricular activities, including athletics, drama, music and lectures, continue as usual during the January Study Period.

*Readings or  
Special  
Projects  
Courses*

Some departments offer readings or special projects courses which may be entered with the permission of the instructor concerned. No student, however, may register for more than eight semester hours of such courses during a given semester or for more than twenty-four semester hours of such courses during his college career.

*Accelerated  
Programs*

A student may earn the Bachelor's degree in less than four academic years through a combination of Advanced Placement credit, a larger than normal program of studies and attendance at summer schools.

*Summer School  
Courses Other  
Than Clark's*

Credit toward a degree for study at a summer school other than the Clark Summer School must be approved by the Registrar no later than Registration Day of the following semester. Students are strongly advised to confer with the Registrar prior to taking summer school courses to assure acceptability of credit toward the Clark degree.

*Expanded  
Programs*

A student whose grade point average for any semester is 2.3 or better may register without special permission for a program of more than 18 but no more than 20 semester hours for the following semester.

A senior whose graduation within the academic year depends on the completion of an expanded program during that year may register for more than 18 but no more than 20 semester hours if his grade point average for the preceding semester is 1.7 or better.

*R.O.T.C.*

Clark students may enroll in Reserve Officers' Training Course programs at either the College of the Holy Cross or Worcester Polytechnic Institute.

Clark participates in the Washington Semester program of the American University in Washington, D. C. Under the program, a small number of superior students may be nominated to attend the program, usually in the junior year, studying United States government in the nation's capital. Though any student may be interested in the program, the opportunity should be particularly attractive to students majoring in government, international relations, history, economics or sociology. A credit of 15 semester hours is given for the program toward the Bachelor's degree at Clark. Inquiry and application should be made to the chairman of the Department of Government and International Relations.

*Washington  
Semester  
Program*

In cooperation with such organizations as The Experiment In International Living, The Institute of European Studies, the Jacob Hiatt Institute in Israel and several American colleges and universities, Clark offers its students the opportunity of spending all or a portion of their junior year abroad. These and other programs of foreign study involving academic credit must have prior approval of the College Board.

*Junior Year  
Abroad*

Under special circumstances, students may be permitted to register for a semester program of less than 12 semester hours. Such students are designated as part-time students.

*Partial  
Programs*

Special students register for such programs as they agree upon in consultation with the instructors concerned.

*Special  
Students*



## Requirements for a Bachelor's Degree

### General Requirements

*Residence:* Normally at least sixty semester hours of the total one hundred and twenty semester hours required for the Bachelor's degree must be taken at Clark University. Of these no fewer than thirty of the last sixty semester hours must be completed at Clark. Permission for a student to take all or part of his work during the senior year at another institution may be granted, by the College Board only, in exceptional circumstances, especially when an unusual educational opportunity is presented.

*Course Requirements:* All College regulations concerned with credit toward a degree are expressed in terms of semester hours. In undergraduate courses, a semester hour as a unit of credit normally implies one class meeting of approximately fifty minutes in duration or one laboratory exercise of two or three hours duration per week throughout one semester. One hundred and twenty semester hours at a satisfactory level of scholarship are required for the Bachelor's degree.

### Major Requirements

*Major:* A departmental major consists of from forty to fifty semester hours chosen from courses designated by the department for the purpose. At least half but no more than three-quarters of these semester hours must be in the major subject; the remaining hours must be in related fields of study as designated by the department. No department may *require* a student to take more than fifty semester hours in the major and related fields, but a student may take more than fifty semester hours if he meets the other requirements for graduation. A grade point average of at least 2.0 must be attained in at least forty semester hours of courses in the major and related fields.

Mathematics 12 is normally a requirement for all students intending to major in Group A — Science and Mathematics.

### Other Requirements

A student must take and pass courses equaling at least 36 semester hours outside the Group (A, B or C-D) in which he is majoring or alternatively (at the direction of his major department) outside those major and related fields or courses designated for this purpose by his major department and approved by the Academic Council.



# Academic Regulations

Grades are reported to each student at the end of each semester. The grades are A—excellent; B—good; C—average; D—poor; F—failure, and P—pass. The modifying symbols, plus and minus, are used with each of these letter grades, except F and P, giving 13 levels of passing grades. A report of incomplete may be permitted only when sickness or some other unavoidable circumstance prevents the completion of a course.

*Grades*

A *grade point average* is determined for each student at the end of each semester by multiplying the credit in semester hours of each course by a *grade point* or numerical equivalent of the letter grade, adding the totals and dividing the result by the total number of semester hours for which the student is registered. The grade points used for the calculation of averages are as follows:

|          |          |          |          |       |
|----------|----------|----------|----------|-------|
| A+ = 4.3 | B+ = 3.3 | C+ = 2.3 | D+ = 1.3 | F = 0 |
| A = 4.0  | B = 3.0  | C = 2.0  | D = 1.0  |       |
| A— = 3.7 | B— = 2.7 | C— = 1.7 | D— = 0.7 |       |

A record of failure in a course is final and not subject to change on the basis of any subsequent performance of the student. Credit for a course in which a failure has been reported may be secured only by repeating the course and earning a passing grade.

A record of incomplete incurred in the first semester must be made up no later than the following April 1; if incurred in the second semester or summer term, it must be made up no later than the following October 15. If a course is not completed within the specified time, the record of incomplete is changed to one of technical failure.

A student who is registered for at least 12 hours may at the time of final semester registration in no more than four semesters choose one course for which he will either receive a P or, in the event of failure, have no evidence of the course entered on his permanent record, provided that no such course may be used in partial fulfillment of major requirements, (and provided that the total semester hours so chosen do not exceed

*Pass-No  
Record*

16.) A department may with the approval of the Academic Council designate certain courses which may not be chosen by students on this basis.

*Reporting  
Grades To  
Outside  
Sources*

Unless a student indicates in writing to the Deans of Undergraduate Student Affairs that he wishes it not be done in his case, information concerning academic performance will be released upon request to high schools attended by the student, to scholarship sources and to prospective employers.

*Withdrawal  
From Courses*

A student may enter a course without special permission other than in those courses in which it is required anytime record of failure at any time during the first four weeks of classes, regardless of the grade he has thus far attained in that course, providing that, after withdrawal, he is carrying no fewer than twelve semester hours.

At any time after the first four weeks of classes and up until two class-weeks before the beginning of the final examination period, the Chairman of the College Board may permit a student to withdraw from a course without a record of failure providing the student is not failing that course at the time of request and that after withdrawal he is carrying no fewer than twelve semester hours.

*Course  
Changes*

A student may enter for a course without special permission other than in those courses in which it is required, anytime up to final registration at the end of the second week of classes. Between the second week and mid-semester he may enter with the permission of the instructor and (without petition).

*Academic  
Standards*

Candidates for the Bachelor's degree must obtain a final cumulative average of at least 1.85 in all courses taken at Clark.

*Classification  
of Students*

All students who have not been required to withdraw at the end of a given semester will be promoted if they have satisfactorily completed the following semester hours:

|                        |              |
|------------------------|--------------|
| To the sophomore class | 24 sem. hrs. |
| To the junior class    | 54 sem. hrs. |
| To the senior class    | 84 sem. hrs. |

Freshmen and Sophomores who receive a semester grade point average of less than 1.60, Juniors and Seniors who receive a semester grade point average of less than 1.70, and students who receive more than one failure in any semester will automatically be placed on probation.

*Probation*

Students will ordinarily be required to withdraw after two consecutive or three non-consecutive probationary-level semesters.

*Dismissal*

Final examinations are regularly given at the end of each semester in most College courses. Approximately one week is set aside for each examination period and an attempt is made to distribute the examinations for any individual student throughout this period. Absence from a final examination, except for the most compelling reasons, may result in a record of failure in the course. Other examinations and tests may be given at any time during the semester at the convenience of the instructors.

*Examinations*

The College has no class attendance requirements. However, instructors have the prerogative of establishing such requirements for their own courses.

*Class  
Attendance*

A student who is in good standing may apply to the College Board for a leave of absence, after which he may return to the University without formal application for readmission.

*Leaves of  
Absence*





## Honors and Awards

### Annual Honors

First honors and second honors are awarded at the end of each year to members of the freshman, sophomore and junior classes who have, in the judgment of the College Board, distinguished themselves by their scholarship during the year.

### Course Honors

The bachelor's degree may be awarded *cum laude*, *magna cum laude* and *summa cum laude* to students whose records, in the judgment of the College Board, warrant this distinction.

### Departmental Honors

A student may elect a program leading to a bachelor's degree with honors in a particular subject at the beginning of the junior year and, in some cases, at the beginning of the senior year. Under this plan, the department appoints an honors adviser who assists the student in planning a unified program of courses for the junior and/or senior years. The program may include a maximum of twenty-four semester hours in which the student works with a large measure of independence under the supervision of the adviser. In the senior year, the student must pass a comprehensive examination given by the department.

Students may apply in writing to their major department for permission to take honors work, not later than May 1 in the sophomore year or, in some departments, in the junior year. Department approval is necessary for admission to such work. In exceptional cases and in certain departments, application may be made and admission approved by the department concerned as late as the first two weeks of the senior year but only with consent of the College Board.

Admission to an honors program does not relieve the student from any of the standing regulations. A student's candidacy for honors will be terminated at the end of any semester in which he has not maintained a standard satisfactory to the department in which he is doing honors work. If candidacy is terminated for any reason, the amount of credit to be allowed for honors courses will be determined by the College Board in consultation with the major department.

The department may recommend the student's graduation with honors, high honors or highest honors, the recommendation to occur at the conclusion of the honors program.

The Society of Phi Beta Kappa, founded at the College of William and Mary in 1776, is dedicated to the recognition and encouragement of outstanding scholarly achievement in liberal studies. The Clark Chapter, Lambda of Massachusetts, was established in 1953. Each year, a limited number of juniors and seniors are elected to membership on the basis of distinction in programs which are clearly liberal in character, with due consideration of evidence, both formal and informal, of high scholarship and creativity.

*Phi Beta  
Kappa*

*Omicron Delta Epsilon*: National Honor Society in Economics.

*Delta Phi Alpha*: National Honor Society in German.

*Gamma Theta Upsilon*: National Honor Society in Geography.

*Phi Sigma Tau*: National Honor Society in Philosophy.

*Sigma Pi Sigma*: National Honor Society in Physics.

*Psi Chi*: National Honor Society in Psychology.

*Other  
Honorary  
Societies*



## Tuition and Other Charges

### *General Information*

Undergraduate tuition, fees and other charges for 1970-71 are listed below. Charges for the Evening College and the Summer School can be found in their respective catalogs. Tuition, fees and other charges for graduate students are listed under the catalog section on The Graduate School.

Tuition, board, dormitory charges and certain fees are due and payable at the beginning of each semester. These dates for 1970-71 are *September 7* for the first semester and *February 8* for the second semester. No one is permitted to register for any semester until all financial obligations have been satisfactorily arranged with the University. A penalty fee is levied for late registration and late payment of charges.

### *Tuition*

Tuition for each semester is based on a normal program of from 12 or more semester hours. Students who enroll for less than the normal program are charged at the rate of \$102.10 a semester hour.

Special students also are charged at the rate of \$102.10 semester hour.

### *Consolidated Fee*

Beginning in 1968, the University merged a large number of special fees formerly charged separately for laboratories, matriculation, graduation, etc. into a single uniform consolidated fee of \$25.00 a semester. This fee is charged to all students enrolled for 9 or more semester hours.

### *Refund*

A student who withdraws during the first week of any semester is allowed a refund of 80 per cent on tuition; during the second week, 60 per cent; during the third week, 40 per cent; during the fourth week, 20 per cent; after the fourth week there is no refund. The Consolidated Fee and Activities Fee are refunded by the same formula. There is no refund on other charges, except board, when a student withdraws from the University.

When a student has left, but not withdrawn from the University on the advice of a doctor within the first four weeks of a semester, and a decision is made later that the student must withdraw, tuition refund is made retroactive to the date of the doctor's recommendation, based on the schedule described above. A detailed statement of the refund policy may be obtained in the General Office.



Undergraduates residing in dormitories must elect one of four Board Plans for meals in the University dining halls. The plans are: 20 meals a week, \$310.00 per semester; 15 meals a week, all meals weekdays only, \$260.00 per semester; 13 meals a week, no breakfasts, \$280.00 per semester; and 10 meals a week, lunch and dinner weekdays only, \$240.00 per semester.

*Board*

All undergraduates are required to pay a \$25.00 deposit to cover minor charges, such as property damage, which may be incurred during the year. They are billed each year for whatever charges are incurred; the balances are refunded upon completion of their studies.

*Contingency  
Deposit*

A dormitory deposit of \$50.00 is required each spring of upperclassmen to reserve a place in a dormitory. It is credited toward the dormitory charges. The deposit is forfeited if the student does not enroll for the specified semester.

*Dormitory  
Deposit*

A fee of \$30.00 per semester, levied and administered by the Student Council, is required of all undergraduates, including part-time students, but not special students. It pays for admission to and participation in a wide range of cultural and recreational activities.

*Student  
Activity Fee*

All students are expected to subscribe to the student insurance plan which gives year-round coverage for health and accidents, unless they are similarly protected by other insurance. A fee of \$33.00 is charged.

A fee of \$15.00 must accompany the application for admission to the College. It is not refundable.

*Application  
Fee*

A deposit of \$200.00 is required of applicants when they accept the University's offer of admission. It is credited toward charges for the first semester. The deposit is forfeited if the student does not enroll for the specified semester.

*Admission  
Deposit*

A deposit of \$200.00 is required of all students planning to return to the University for their sophomore, junior or senior years. It is payable by *July 1*, and is credited toward charges for the fall semester. The deposit is forfeited if the student does not enroll for the specified semester.

*Tuition  
Deposit*

**Key Deposit** Deposit for keys may be required of the student for entrance to buildings, laboratories, personal lockers or mail boxes.

### SUMMARY OF TUITION AND OTHER CHARGES

|                          |                                             |                                   |
|--------------------------|---------------------------------------------|-----------------------------------|
| <i>Tuition</i>           | Full Program<br>(12 or more semester hours) | \$1225.00 per semester            |
| <i>Consolidated Fee</i>  |                                             | \$ 25.00 per semester             |
| <i>Board</i>             |                                             | \$240.00 to \$310.00 per semester |
| <i>Dormitory Charges</i> | Room rent (single)                          | \$280.00 to \$317.50 per semester |
|                          | Room rent (double)                          | \$230.00 to \$267.50 per semester |
| <i>Activities Fee</i>    |                                             | \$ 30.00 per semester             |
| <i>Other Fees</i>        | Application (undergraduate)                 | \$ 15.00 per semester             |
|                          | Health and Accident Insurance               | \$ 33.00 per year                 |
|                          | Transcripts<br>(no charge for first one)    | \$ 1.00                           |
| <i>Deposits</i>          | Admission (Freshmen)                        | \$200.00                          |
|                          | Tuition (Upperclassmen)                     | \$200.00                          |
|                          | Dormitory                                   | \$ 50.00                          |
|                          | Contingency (see page 35)                   | \$ 25.00                          |

## Student Services

|                     |                                                                                                                                                                                                                                                                                        |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Dining Halls</i> | Dining halls in Little Commons, Jefferson Hall, and Dana Center are operated for the convenience of students and staff of the University. Service is cafeteria style. The snack bars in Jefferson Hall and Dana Center are open to all members of the Clark community.                 |
| <i>Dormitories</i>  | Resident undergraduates may be required to live in University operated dormitory facilities. Residents of each dormitory determine the visiting hours for members of the opposite sex and there are no curfews in any of the dormitories.                                              |
| <i>Infirmiry</i>    | The University Infirmiry provides for minor medical services to all students and temporary in-patient care for resident students. A full-time nurse and a part-time physician are in attendance. Other physicians, other health specialists, and hospitals are available in Worcester. |

Subscription to a low-cost health and accident insurance plan covering ordinary medical expenses not covered by the University is urged of all students unless they are similarly protected by other insurance.

*Health and  
Accident  
Insurance*

There is a Psychological Services Center which is part of the doctoral training program in Clinical Psychology. In keeping with the training functions of the program some psychological services (testing, psychotherapy, etc) are available. Every effort is made to refer students to an appropriate resource for help in academic or personal adjustment.

*Psychological  
Services  
Center*

Students and alumni of the University may use the services and facilities of the Career Planning and Placement Center, which include: a library of graduate school directories and catalogs; vocational testing; aids and help in reading and effective study techniques; information on destinations of Clark graduates in careers and acceptance to graduate study; on-campus interviews with representatives of employing organizations and complete lifetime placement service. Counseling services may involve giving information related to curriculum choice, vocational possibilities, or response to concerns of a personal nature.

*Career  
Planning and  
Placement  
Center*

## Student Life

The Clark community is a liberal environment in which students are regarded as citizens fully participating in rights and liberties and, therefore, expected to take primary responsibility for the social as well as the intellectual aspects of their lives. Making an assumption of maturity in students, the University operates with a minimum of social regulations.

The Student Council, elected by the student body each spring, is an active influence in the social, cultural and political activities of the campus. It is concerned with general campus governance, and disburses the funds raised by the student activities fee, which it levies, among the various student organizations.

Students are represented on several important University committees, and have ready, less formal daily access to faculty and administration which enables them to play an important role in the making of policy and the effecting of changes.

*Student  
Government  
and  
Participation  
In Institutional  
Decision  
Making*





**Communications** Students publish *Scarlet* and *Anthem*, weekly newspapers; *Helicon*, a literary magazine; *Fotch*, a humor magazine; and *Pasticcio*, a yearbook. A campus radio station, WCUW, broadcasts approximately 70 hours per week.

**Cultural  
Events and  
Activities**

Noted scholars, musicians, artists, performing groups and public figures, sponsored by the University and various campus groups, are brought to Clark for lectures, performances and concerts.

Campus musical groups open to student participation include the University Chorale, Instrumental Ensemble, Madrigal Singers and an opera group.

The Clark University Players Society and the Experimental Theater present dramatic offerings with student casts.

The Clark University Cinema and other campus groups present foreign and domestic films, both conventional and experimental in nature. Student-produced experimental films are also occasionally presented.

The city of Worcester also offers cultural opportunities, such as a Musical Festival in the fall featuring the Detroit Symphony Orchestra, and such as the Community Concert Series. The Worcester Art Museum, world famous for its outstanding collections and art school, sponsors numerous lectures, movies and concerts. Neighboring academic institutions also sponsor programs which are available to members of the Clark community.

Dances and a variety of concerts are sponsored by the student Social Affairs Board. Fall and Winter Weekends are two major social events; smaller dances and parties are provided by three fraternities, all of which own houses near the campus. An on-campus, student run Coffee House in the Dana Commons sponsors a variety of programs.

*Social  
Activities  
and  
Organizations*

There are student organizations affiliated with academic departments, such as the Physics, Psychology and German clubs, and others related to hobbies or interests, such as the Chess Club, the Debate Society, Pre-Law Club, Sports Car Club, and Photography Club, and Craft Studio.

*Campus  
Organizations*

Religious organizations include the Christian Fellowship Organization, Clark Christian Association, the Newman Club and Hillel Counselorship.

Scarlet Key, an honorary service society open to men and women, organizes tours for campus visitors and in other ways aids in the hosting of University guests and the introduction of new students to the campus.

Gryphon and Pleiades, the men's and women's senior honorary societies, play important roles in innovating new programs and in maintaining many of the College's traditions.

Many Clark students are concerned about issues of war and peace, civil rights, pollution and poverty. Frequently they participate in national programs and in community action groups and initiate campus organizations, lectures, discussions and debates to confront these critical issues. Student-organized social action groups include a Birth Control Information Center, Draft Information Services, Action Committee for Civil Liberties, a tutorial Service and a Black Student Union.

*Social Action  
Activities*



## Physical Education and Athletics

Programs are designed to stimulate and encourage students to wider participation in physical activities to promote health and mental efficiency and lead to continuing participation throughout life. Participation is voluntary.

### *Men's Programs*

Men may choose activities in the following areas:

#### *1. Intercollegiate Athletics*

For men with a reasonably high level of skill and a well defined and strong interest in athletic competition, intercollegiate schedules at the Varsity and Freshman levels are arranged in baseball, basketball, golf, eight-oared shells, soccer, tennis, track and cross-country.

#### *2. Intramural Athletics*

The opportunity to gain some of the benefits of participation in competitive athletics is offered to all students through organized intramural competition in touch football, basketball, volleyball, tennis, handball, table tennis, paddle rackets, and softball.





### 3. *Physical Education Classes*

Instruction and practice is offered in a wide variety of activities including work with a number of team games, individual and dual sports, apparatus, and calisthenics.

Students carrying less than a full program of studies are ineligible to participate in organized extracurricular competitive athletics unless the reduced program permits graduation at the end of the year in which the program is carried. A student transferring with advanced standing from another four-year college is ineligible for one calendar year from the date of registration at Clark to participate in any varsity sport. Special students are not normally entitled to participate in competitive intercollegiate sports.

*Eligibility*

Clark University is a member of the National Collegiate Athletic Association, the Eastern College Athletic Conference, the New England College Athletic Conference and numerous sports associations.

*Association  
Memberships*

Students may participate in archery, badminton, basketball, fencing, field hockey, golf, horseback riding, tennis, softball, volleyball and in several dance activities, including folk, square and modern dancing. Women use their own gymnasium for practice but have the use of the Alumni Gymnasium for games with outside organizations.

*Women's  
Programs*

## Admission

### *Freshman Admission*

Clark University welcomes applications for admission from men and women without regard to race, creed, color, or national origin. Selection is competitive and is based primarily on academic promise as indicated by secondary school performance, recommendations, and Scholastic Aptitude Test scores. Secondary considerations include unusual strengths and particular accomplishments.

### *Entrance Requirements*

In general, the completion of a four-year secondary school program or its equivalent is required for admission to the freshman class. Although Clark does not have an early admission program, applications will be considered from outstanding students in their junior year of secondary school who have the unqualified and enthusiastic recommendation of their college counselors. Official records of all secondary schools attended must be submitted.

A minimum of 16 acceptable units of credit is required for admission to the freshman class. Such programs typically include four years of English; two or more years of any foreign language studied; two or more years of mathematics (three



or more for those planning a science or mathematics major); at least one year each of social studies and natural science (more laboratory work for those planning a science major); and other credit electives, including the arts, recognized in the secondary school curriculum.

All applicants must arrange by January of their final year of secondary school to take and to submit the results of the Scholastic Aptitude Test as administered by the College Entrance Examination Board. Achievement Tests are not required. Candidates who have studied French or Spanish are advised that Achievement Tests in these subjects are used for placement and appropriate test results should be submitted *whether or not further language study is planned*.

Further information concerning these testing programs may be obtained from the applicant's secondary school guidance counselor or from the College Entrance Examination Board. The College Entrance Examination Board may be addressed in the East at Post Office Box 592, Princeton, New Jersey 08540; in the Far West at Post Office Box 1025, Berkeley, California 94701.

Candidates for admission wishing a campus tour or interview are asked to write or call the Admissions Office for detailed information concerning appointments. An interview, however, is not required.

Candidates for admission are encouraged to submit their applications as early as possible during the first semester of their final year of secondary school. All applications must be received by *February 1*. *Early decision* candidates must file complete applications by *November 1*. An application fee of \$15.00, non-refundable, must accompany each application unless a waiver is being requested.

*Applications*

Time of notification of admission to the incoming freshman class is normally on or about April 15. Students who have applied for *early decision* will be notified on or about December 1.

*Notification  
of Admission  
and Deposit*

Upon receipt of a formal offer of admission a student must indicate acceptance of the offer by making an admission deposit of \$200.00, nonrefundable, to reserve a place within the incoming freshman class. This deposit will be credited towards the charges for the first semester.



- Housing Arrangements* All single freshmen not living with their families must live in residence within University operated dormitory facilities. Rooms are assigned during the summer prior to the arrival of the freshman class. Inquiries concerning living arrangements should be sent to the Office of the College.
- Transfer Applicants* Clark University will consider applicants for transfer from four-year colleges and universities and from two-year colleges. Normally, only those students seeking entrance in the fall and at the junior level are considered. The application deadline is April 15.
- Transfer Requirements* All applicants for transfer are required to submit evidence of honorable dismissal, complete transcripts of all previous academic records, including the results of all College Entrance Examination Board tests taken, and such other information as the Admissions Committee may request.
- Transfer Credit* Credit is normally given for courses previously taken at accredited colleges or universities if these courses are comparable to those offered within the Clark University curriculum. Credit for courses previously taken at non-accredited colleges is granted only on a provisional basis to be evaluated upon successful completion of two semesters of work at Clark with a cumulative average of 1.7. No credit is given for any course completed with a grade lower than C-minus.
- Evaluation of credits for college courses completed elsewhere is made prior to or at the time of a student's first registration at Clark and is used in planning his course program and in classifying him provisionally as a freshman, sophomore, or junior.
- Foreign Students* While Clark welcomes applications from foreign students, it is unable to provide financial aid to cover a foreign student's educational expenses. The University does, however, participate in both the LASPAU and ASPAU Programs partially funded by the Agency for International Development. Each foreign student accepted for admission must have medical insurance, preferably that available from the Institute of International Education.
- Applications from foreign students must be submitted by February 1. Foreign students whose native tongue is not

English must be able to satisfy the University requirements for proficiency in the English language.

Persons who are not degree candidates, but who wish to take advantage of the opportunities for study provided by the University and who give satisfactory evidence of adequate preparation for the work which they wish to undertake, may apply for admission under the status of Special Student. Enrollment in this category is limited. Inquiries concerning this category of student should be addressed to the Office of the Registrar.

At the discretion of the administrative officers of the University, Auditors, registered for attendance but not for credit, may be admitted. They are required to pay the regular tuition rates and the matriculation fee, but are not enrolled as students.

*Special  
Students and  
Auditors*

Persons who wish to be candidates for a degree, or who wish to take advantage of the opportunities for study provided by the Summer School or The Evening College, are invited to send inquiries concerning admission, programs available, or other questions to the Director of the Evening College or Summer School.

*Summer School  
and Evening  
College*



## Financial Assistance

### General Information

Financial aid is awarded on the basis of financial need and academic performance and consists of scholarships, grants, loans and part-time employment.

### Method of Application

1. *Freshmen* — To be considered for financial aid, a candidate for the Freshman Class must complete the following steps:
  - a. File an application for admission with the Director of Admissions by February 1 of the year he intends to enter, indicating on this application, by checking the appropriate box, his intent to apply for financial assistance.
  - b. File a completed Parents' Confidential Statement with the College Scholarship Service by February 1 and direct that a copy be forwarded to Clark University. The Parents' Confidential Statement may be obtained from the secondary school guidance office.
  - c. Residents of Massachusetts are expected to make application to the Board of Higher Education for a Massachusetts State Scholarship. Information is available from secondary school guidance counselors. Students applying from out of state should investigate the opportunity of using their State Scholarship Program at Clark.
2. *Upperclassmen* — Upperclassmen must reapply annually for financial aid by submitting an updated Parents' Confidential Statement to the College Scholarship Service prior to March 1. Forms may be obtained from the Financial Aid Office of the University.
3. *Transfers* — Students applying for admission with Advanced Standing and who are requesting financial aid must submit the Parents' Confidential Statement to the College Scholarship Service prior to April 15. Because of limited funds, it is suggested that students in this category explore alternative methods of financing their education at Clark.

Applications for financial aid cover all scholarships, grants, loan funds — including National Defense Student Loans — and College Work-Study funds administered by the University. Be-



cause the University's financial aid funds are limited, not all students who apply for aid can be given an award. Students who have financial need and do not receive financial aid from the University at the time of admission should review their financial resources before accepting an offer of admission to the University inasmuch as a student should not ordinarily expect to receive an award as an upperclassman if he has not received an award as a freshman. Each year the University is able to help only a few new upperclass applicants for assistance.

The policy of the University is to renew aid to a freshman who continues to demonstrate financial need as an upperclassman. Financial aid awards may be adjusted from year to year as a student's need varies.

The Committee on Financial Aid expects that all financial aid recipients will contribute to the cost of their education from summer and part-time employment. Financial aid awards have reasonable average-earnings expectations factored in. It is also expected that students on financial aid will not maintain or operate motor vehicles while in attendance at the University unless an automobile is needed for commuting purposes or in the earning of income.

The University administers financial aid by a method called "packaging"; i.e., each recipient is normally expected to meet part of his financial need through employment and the use of loan funds, with the balance coming from the University or some other source in the form of scholarship or grant. Packaged financial aid awards are typically composed of a combination of two or more of the following four categories.

*Jonas Clark Scholarships* — A portion of the University's income is reserved for this purpose. Gifts from alumni, parents and friends provide additional, important sources of funds for scholarship purposes.

*Federal Educational Opportunity Grants* are part of a Federal program of assistance to college students. They are grants, not loans, and are renewable on a yearly basis. The grants are specifically designated for students from low income families.

*National Defense Student Loan Program* provides funds for long-term loans which bear no interest until a student has completed full-time study. Normally a person borrowing from these funds will repay the amount over a period of up to ten

years. National Defense Student Loans are granted on the basis of financial need and available funds. All National Defense Loan commitments are made contingent on Congressional appropriation of funds annually for this program.

*College Work-Study Program* — There are Federal funds to provide employment for students who have financial need. Application for employment through the College Work-Study Program may be made at the Financial Aid Office. Further details on all forms of financial aid at the University may be obtained by writing to or visiting the Financial Aid Office.

*Supplementary  
Sources of  
Assistance*

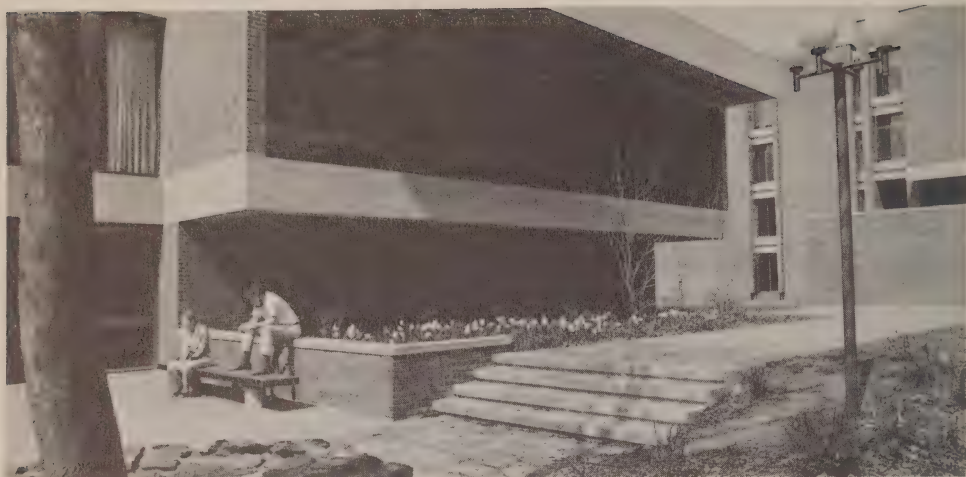
1. *Guaranteed Loan Program* — A Federal loan program designed primarily for middle income families is available and administered in the various states by local banks. Undergraduates may borrow up to \$1,500 yearly (depending upon the State); graduate students may borrow up to \$1,500 yearly. Students whose families have adjusted incomes of under \$15,000 will have a portion of the interest paid by the Government. Since the program is not completely operative in all states at this time, it would be advisable for students interested in this program to contact their local banks for complete information.
2. *State Scholarships* — Information pertaining to State Scholarship Programs is available at secondary school guidance offices.
3. *Veterans' Benefits* — Veterans admitted to Clark should communicate with their local Veterans Administration Office requesting an application for a program of education under Public Law 89-358.
4. *Student Employment* — Employment for undergraduates is coordinated through the Financial Aid Office. There is work available in various offices and departments of the University. The Financial Aid Office also serves as a liaison between students and outside employers in the Greater Worcester Community. Employment opportunities are posted on the employment bulletin board which is located in the mail room in Estabrook Hall.

Most scholarships awarded by the University are designated Jonas Clark Scholarships. Funds for these scholarships are derived from University income and from endowed funds as

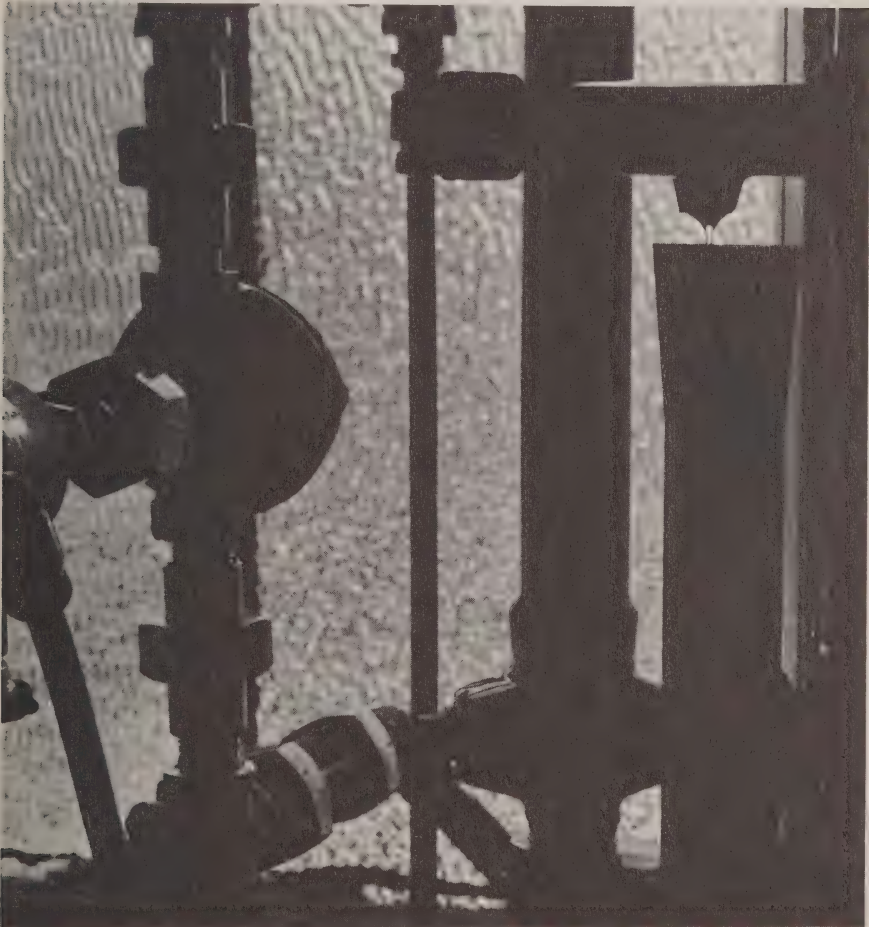
follows: Because of the various restrictions placed on these funds, it is the policy of the College to select eligible recipients. Students should not apply directly for them.

- The Reginald Bryant Allen Fund
- The Alumni Group Scholarship
- The B'nai B'rith Scholarship
- The Gertrude and William Brodie Award
- The Charles W. and Annie L. Bruninghaus Fund
- The Clark University Faculty Women's Club Scholarships
- The Theodore T. and Mary E. Ellis Fund
- The Albert C. Erickson Scholarship
- The A. D. Ross Fraser Scholarship
- The Aaron Fuchs Memorial Scholarship Fund
- The Paul S. Goldman Memorial Scholarship
- The Bertram L. and Bessie T. Handleman Fund
- The Frank H. Hankins Scholarship
- The High School Basketball Tournament Scholarship
- The Gertrude and Eva Hillman Scholarship
- The Frances Tufts Hoar Fund
- The Gordon A. Hubley Fund
- The M. Hazel Hughes Scholarship
- The George N. Jeppson Scholarship Fund
- The David Ashley Leavitt Memorial Scholarship Fund
- The Levi Knowlton Fund
- The Elizabeth T. Little Scholarship Fund for Women
- The Homer Payson Little Scholarship in Geology
- The Livermore and Ambulance Drivers Scholarship
- The Robert H. Loomis Scholarship
- The National Council of Jewish Women Scholarship
- The Alice Friend Newton Memorial Scholarship
- The Abraham Persky Scholarship Fund
- The Charles B. Randolph Fund
- The Helen Brewster Randolph Memorial Scholarship





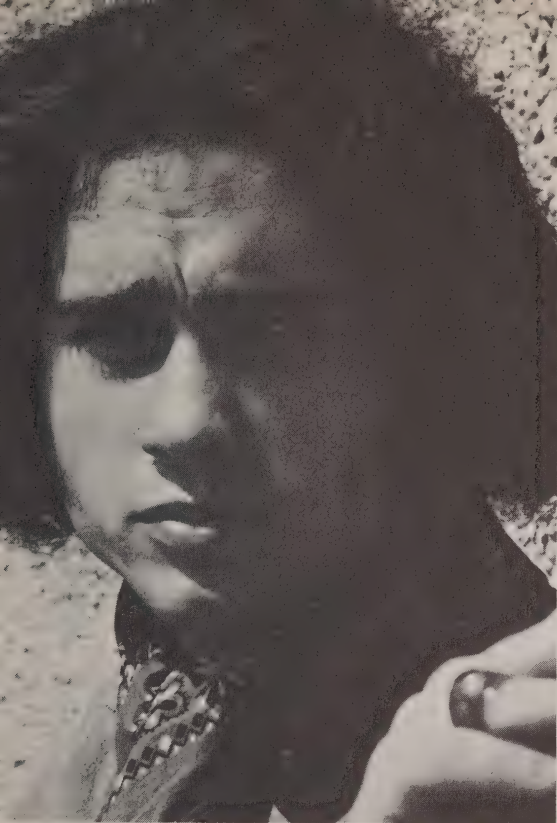
The Jennie L. Richardson Scholarship  
The William Richardson Scholarship  
The Sanford Memorial Scholarship  
The Samuel Schanberg Memorial Scholarship Fund  
The Fredric T. Sewall Scholarship Fund  
The Henry L. Signor Scholarship  
The Benjamin R. and Grace F. Vanderford Student Aid Fund  
The Whitman Scholarship  
The Henry A. Willis Scholarship



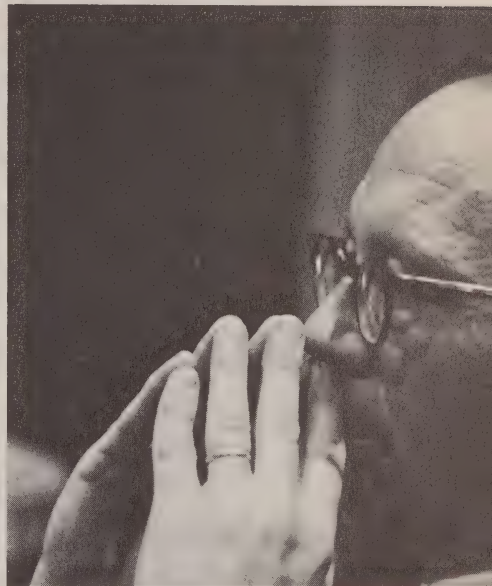








# THE GRADUATE SCHOOL



# The Graduate School

## *General Information*

Clark University was initially established in 1887 as the second graduate institution in America. Its faculty and graduates have endowed the University with an impressive record of accomplishments through the years. Under the administration of the Graduate Board, Clark offers programs leading to master's and doctor's degrees to qualified holders of a bachelor's degree or its equivalent of attainment.

Master of Arts degrees are offered in the fields of biology, biomedical engineering (in cooperation with Worcester Polytechnic Institute), chemical physics, chemistry, economics, education, English, geography, government, history, international relations, mathematics, physics, psychology and sociology. A Master of Arts in Teaching is offered in Romance Languages. The Master of Business Administration degree is offered by the University and is described elsewhere in the catalog.

Doctor of Philosophy degrees are offered in biology, chemistry, chemical-physics, economics, geography, history, international relations, mathematics, physics and psychology. A Doctor of Education degree is offered by the Department of Education.

Post-doctoral training is conducted in geography, psychology and the sciences. Inquiries should be addressed to the chairman of the department concerned.

Departments which do not at present accept candidates for graduate degrees may offer courses which are suitable for inclusion in a program of graduate study.

Scholarships and fellowships are listed at the end of this section. Additional information concerning departments and their offerings will be found in the section entitled "Departments and Courses."

## *Inquiries*

Inquiries by students in American institutions concerning specific programs of graduate work should be addressed to the chairman of the department concerned. Inquiries by foreign students should be addressed to the Dean of the Graduate School.

## *Admission To The Graduate School*

Admission to the Graduate School may be granted only by the Credentials Committee of the Graduate Board on the recommen-

dation of a department of the University. Admission to the school does not imply admission to candidacy for a degree.

*Application:* A prospective applicant from an American institution should communicate with the department in which he expects to do his major work. If he is encouraged by the department to make application, he will be provided with an application form which must be accompanied by the \$10 application fee. These should be returned to the chairman of the department. In addition, the applicant should arrange to have an official transcript of his undergraduate, and any subsequent work, and three letters of recommendation from persons who are competent to judge his qualifications for graduate work sent directly to the chairman of the department concerned.

Departments may request the submission of additional material, and most require a record of attainment in the Graduate Record Examination given by the Educational Testing Service, Princeton, New Jersey. All applicants are urged to take, and to submit the results of the Graduate Record Examination verbal, quantitative and advanced tests.

A foreign student, if encouraged by the Dean to make formal application, should provide a certified English translation of his official record (if not in English), evidence of English proficiency, at least two letters of recommendations and a statement concerning his financial resources, or agency support.







Applications for both admission and for financial aid should be completed not later than *February 20* if the applicant intends to begin his studies in the following September. Applications may be submitted, however, throughout the year and are periodically considered by the Graduate Board.

*Admission:* Admission to the Graduate School is granted for entry only at a specified time and lapses if the student fails to enter at that time. Admission as special or part-time graduate students may be granted to qualified applicants who do not wish to work for a degree or who cannot devote full time to study.

If a student, when admitted, was a candidate for a degree elsewhere, he must arrange upon receipt of the degree to have a supplementary transcript, including a notation of the degree conferred, sent directly to the Dean of the Graduate School.

*Master of Arts*

*Residence:* An Academic year (*twenty-four semester hours*) of study in residence is a minimum requirement for a master's degree. Residence study is broadly defined as graduate work done at Clark University under the immediate personal supervision of at least one member of the University faculty.

*Foreign Language:* A reading knowledge of a foreign language may be required of candidates for the degree of Master of Arts at the discretion of the major department. Language or other special requirements are included in the department announcements in the catalogue.

*Candidacy:* Application for admission to candidacy for a master's degree should be filed with the Dean of the Graduate School not later than the first week of the last full semester which the student expects to spend in residence as a candidate for this degree.

Applications will be considered by the Graduate Board when the student has completed one semester of full-time graduate work or its equivalent in residence at the University and obtained the written endorsement of his major department.

Candidacy for the degree of Master of Arts is valid through the fourth commencement after admission to candidacy. For satisfactory reasons, candidacy may be extended once for an additional period of three years by vote of the Graduate Board.

If admission to candidacy is not filed at the time of completion of residence, then, after the fourth commencement, admission to candidacy will be approved once for a three-year period by vote of the Graduate Board.

*Course and Examination Requirements:* Each student must meet a minimum course requirement of 30 semester hours, and his program must be approved by the chairman of the department. One of his courses, normally three to six semester hours, may be a research course devoted to the preparation of his thesis. Credit for a maximum of six semester hours of course work at another institution may be approved by the Graduate Board upon the recommendation of the department.

Each candidate must make a satisfactory record in such written examinations as may be required by the major department and in a final oral examination by a committee of three or more.

*Thesis:* The thesis is written on a topic in the field of the student's special interest under the supervision of a member of his major department and in a style, length and format that is appropriate to the problem being researched. The ribbon copy of the thesis, a précis approved by the supervising instructor, and an academic history must be deposited in the Registrar's office not later than three weeks before the date of the commencement at which the degree is to be conferred. At least one additional copy of the thesis and the précis must be delivered to the major department which may require more than one copy. The précis may not exceed 75 words in length. The title page, précis and academic history forms are obtain-

able from the Graduate School Office. The ribbon copy of the thesis must be typed as prescribed in, "The Master's Thesis" issued by the Graduate School Office with its notification of admission to candidacy.

The thesis is deposited by the Registrar in the University Library. The précis is printed in an annual publication, *Dissertations and Theses*.

*Alternative Program:* A candidate for the degree of Master of Arts may be recommended for the degree without a thesis when he has passed the preliminary doctoral examination.

*Diploma Fee:* This fee for the Master of Arts degree is 25.00.

It covers the cost of the diploma, publication of the précis in the booklet *Dissertation and Theses* and binding of the library copy. It is payable when the thesis is deposited with the Registrar and replaces the fee formerly paid at the time of admission to candidacy. Students who do not write a thesis, including those receiving the degree on the alternative program, must pay this fee no later than the date on which theses are due in the Registrar's Office.

*Non-Resident Students:* Students who have been admitted to candidacy for the degree and are not *registered* students are required to pay the non-resident fee of \$12.50 per semester. This fee doubles on renewal of candidacy.

#### *Master of Arts in Education*

The residency, candidacy, course, examination, and diploma-publication fee requirements are the same as those listed for the degree of Master of Arts.

*Thesis:* Students may choose one of three options, subject to the approval of the Department of Education. They may choose to (1) prepare a thesis as required for the M.A. degree; or (2) elect two additional subject-matter courses (six semester hours); or (3) elect a research-seminar, three semester hours, in which papers are prepared and presented to fellow students and staff.

Further information concerning the degree of Master of Arts in Education may be found in the catalog section, "Departments and Courses." listed under the Department of Education.



Students in this program must have two academic years of residency during which half-time is devoted to study and half-time to teaching. Candidacy, course, examinations, and diploma fee requirements are the same as those listed for the degree of Master of Arts.

*Master of  
Arts in  
Teaching*

*Professional Project:* Students may choose one of two options, subject to the approval of the Department of Romance Languages: (1) prepare a thesis as required for the M.A. degree or other appropriate research report; (2) develop and evaluate a set of instructional materials.

Further information concerning the degree of Master of Arts in Teaching may be found in the catalog section, "Departments and Courses," listed under the Department of Romance Languages.

This degree is offered through the Division of Business Administration. For further information, see the catalog section on the M. B. A. Program.

*Master of  
Business  
Administration*

The program leading to the degree of Doctor of Education emphasizes human development and learning as it relates to curriculum, instruction, and evaluation and in the sociology of education. The requirements for this degree closely parallel those for the degree of Doctor of Philosophy (see below). See catalog section on Department of Education for further information.

*Doctor of  
Education*

Only such candidates as give evidence of general proficiency, power of investigation and high attainments in the special fields in which their major subjects lie will be encouraged to proceed to the degree of Doctor of Philosophy.

*Doctor of  
Philosophy*

*Residence:* The minimum requirement is one year of full-time study (not less than 24 semester hours beyond the M.A.), or its equivalent in part-time work, in residence which is broadly defined as graduate work done at Clark University under the immediate personal supervision of at least one member of the University faculty.

If the degree of Master of Arts has been earned at Clark, this requirement is an addition to the residence requirement for that degree.

*Foreign Language:* Each graduate department sets its own language or related requirements as the student's field of research may demand, and must report such requirements in each case to the Dean of the Graduate School. If a language is required either the Educational Testing Service Foreign Language Tests or on-campus testing are employed at the discretion of the department.

*Preliminary Examination:* Upon completion of preparation in his fields of study a prospective candidate takes a preliminary examination set by his major department. This examination may be written or oral, or a combination of both. The chairman of the department may invite non-members of the department from within or without the University to participate in the examination.

*Candidacy:* An application for admission to candidacy should be filed when the applicant has (1) completed two full academic years of graduate work, or its equivalent in part-time work, including one year at Clark University; (2) completed the departmental requirements in a foreign language. (3) passed a preliminary examination in his chosen field of study; (4) obtained the written endorsement of his major department.

Candidacy for the degree of Doctor of Philosophy is valid through the fourth commencement after admission to candidacy. For satisfactory reasons, candidacy may be extended once for an additional period of three years by vote of the Graduate Board. Should a period of four years elapse between completion of prerequisites to filing for candidacy and actual filing for candidacy, then, for satisfactory reasons, candidacy may be accepted once for a three-year period by vote of the Graduate Board.

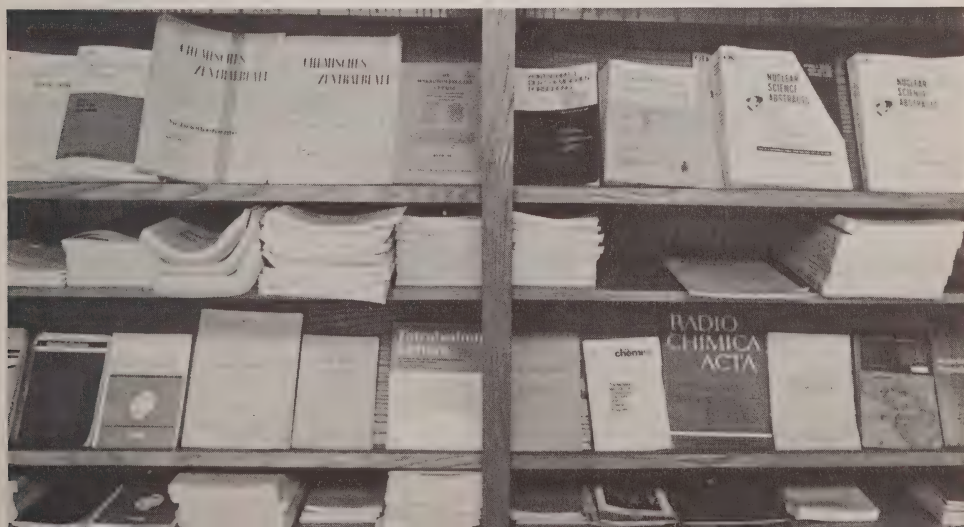
*Dissertation:* A dissertation which is expected to make an original contribution to some special field of knowledge is required of each candidate. The dissertation, approved by the chief instructor or dissertation committee, is laid before the examining committee at the final oral examination.

An abstract of the dissertation, not exceeding 600 words in length, and a précis, not exceeding 75 words, both approved by the instructor or committee under whom they were written, are also required.

Four weeks before the degree is to be conferred, the ribbon copy of the dissertation, together with two official title pages, an academic history, the ribbon copy of the abstract and of the précis, each in a form prescribed, must be delivered to the Registrar. At the same time, one or more copies of the dissertation and of the abstract may be required by the major department. The title pages, précis and academic history forms are obtainable from the Graduate School Office. The ribbon copy of the dissertation must be typed as prescribed in "The Doctoral Dissertation" and "Suggestions for the Preparation of Doctoral Dissertations for Microfilming" issued by the Graduate School Office with its notification of admission to candidacy.

The Registrar deposits the dissertation and the abstract in the University Library where they remain permanently. A microfilm copy of each dissertation is made by University Microfilms, Inc., of Ann Arbor, Mich., and is available for duplication by them on request. The abstract is printed in *Dissertation Abstracts*; the précis is printed in an annual publication, *Dissertations and Theses*.

*Final Examination:* The final examination is oral and lasts for at least two hours. Additional written examinations may be given if the major department so directs. The candidate is expected to defend his dissertation and, at the discretion of the examining committee, may be questioned on the entire special







field of his study. The oral examination is conducted by a committee of at least four members, composed of the chairman of the department, at least one other member of the Graduate Board, and such members of the department and non-members from within or without the University as the chairman may appoint. The chairman notifies the Dean of the Graduate School, at least one week in advance, of the time and place of the examination and the composition of the committee. The Dean is authorized to invite any person from within or without the University to be present and to assist in the examination.

*Diploma Fee:* This fee for the Doctor of Philosophy degree is \$85.00. It covers the cost of the diploma, hood, publication of the précis in the publication *Dissertation and Theses*, publication of the abstract in *Dissertation Abstracts* and binding of the library copy of the dissertation. It is payable when the dissertation is deposited with the Registrar and replaces the fee formerly paid at the time of admission to candidacy.

*Non-Resident Students:* Students who have been admitted to candidacy for the degree and are not *registered* students are required to pay the non-resident fee of \$25.00 per semester. This fee doubles on renewal of candidacy.

#### *Post-Doctoral Study*

Post-doctoral students are classified in three categories: *Honorary Fellows* who are visitors for varying lengths of time, always more than a few days, who wish to observe activities of a department, to study, or to carry on research, but without formal teaching duties or support by the University; *Research Associates* who work full-time with designated members of the University staff on research projects, normally supported by grants, without formal teaching duties but with some responsibility for directing laboratory assistants; and *Trainees* who enroll in a formally offered post-doctoral training program.

The Honorary Fellow and Research Associates enjoy faculty status, although the extent to which faculty privileges may be granted may be restricted by availability of space and other resources.

Graduate fellowships and scholarships are provided for well-qualified graduate students by the University from endowed funds and from other sources. Financial aid to graduate students is available also in the form of grants from a number of special funds, and in some departments, from sponsored research grants. A limited amount of part-time employment is available in the various offices and departments of the University. Frequently, as in the case of departmental assistants, this employment yields useful experience.

*Graduate  
Scholarships,  
Fellowships  
and  
Assistantships*

*Application:* Application for a scholarship or fellowship to begin in September should be made before *February 20* to the chairman of the department in which the applicant expects to do his major work. Late applications are acted upon periodically. All applications, after endorsement by the department, go to the Graduate Board for final action.

*Research Fellowships:* These fellowships may be awarded to graduate students who have fulfilled their residence requirements and who are pursuing a full-time doctoral program.

*Teaching Assistant Scholarships or Fellowships:* These may be awarded to teaching assistants who are engaged in full-time activity on campus, of which approximately half-time is devoted to teaching duties and approximately half-time is devoted to graduate study.

**TEACHING ASSISTANTSHIPS:** In several departments, teaching assistantships, involving less than half-time, are available with stipends which vary according to the amount of service agreed upon.

Note that the departments of Biology, Chemistry, Economics, Geography, History, Mathematics, Physics, Psychology, Sociology, and the Romance Language program require teaching experience for graduate degrees. See the departmental announcements in the catalog section on "Departments and Courses.

*Assistantships:* In several departments, assistantships are available. They involve a variety of services including research with stipends to correspond, and usually provide the student with experience which will be useful in his later professional work.

*Graduate Fellowship and Scholarship Funds:* Stipends for graduate fellowships and scholarships are provided by:

THE ALUMNI ASSOCIATION FUND, provided by alumni who hold the degree of Doctor of Philosophy to benefit students studying for that degree.

THE GEORGE S. BARTON FUND, a bequest from the Honorable George S. Barton of Worcester, to be used for the benefit of native-born citizens of Worcester.

THE ELNORA W. CURTIS FUND, a bequest from Dr. Elnora W. Curtis, A.M. 1908, Ph.D., 1910, for the benefit of graduate students.

THE ELIZA D. DODGE FUND, to be granted to graduate students of limited means who are engaged in research work.

THE JOSEPH F. DONNELLY MEMORIAL FUND, a bequest from Lucretia F. Donnelly to help men who are enrolled in a course leading to the degree of Doctor of Philosophy.

THE JOHN WHITE FIELD FUND, established by Mrs. Eliza W. Field to provide for the minor needs of a scholar or fellow.

THE AUSTIN S. GARVER FUND, a bequest from Austin S. Garver, member of the Board of Trustees from 1908 to 1918.

GRADUATE SCHOOL SCHOLARSHIP FUND, a bequest from Alexander H. Bullock, a member of the Board of Trustees from 1926 to 1946 and president of the board from 1938 to 1946.

THE GEORGE FRISBIE HOAR FUND, the gift of Andrew Carnegie in honor of the second president of the University's Board of Trustees.

THE MYERS FUND, a gift of George E. Myers, Ph.D., '06, to assist graduate students to do research in education and psychology.

THE CHARLES H. THURBER FUND, provided by Charles H. Thurber, member of the Board of Trustees from 1913 to 1938 and president of the board from 1919 to 1937.

#### Graduate Loans

Loans, bearing interest at three percent per year after completion of residency, are available for graduate students from these funds:





THE MARY S. ROGERS SCHOLARSHIP AND LOAN FUND, established in 1926 for the benefit of students in the graduate school.

THE MARY M. THURBER FUND, established by the late Dr. Charles H. Thurber, former president of the University Board of Trustees, as a memorial to his mother.

For loans from these and other sources that may become available, application should be made at the Graduate School Office.

THE WALLACE W. ATWOOD RESEARCH FUND. The income of this fund may be used at the discretion of the staff in the Graduate School of Geography for the promotion of field studies in geography by any member of the staff, or any one of the alumni holding a graduate degree from the Graduate School of Geography, or for the publication of results of such research work.

*Departmental  
Funds*

THE CHESTER BLAND FUND. The income of this fund is preferably used to provide aid to a promising student, either in residence or engaged in research elsewhere under the direction of the Department of History. It may also be used to defray the expense of visiting lecturers or of departmental research.

THE WALLACE W. GREENWOOD FUND. The income only is to be divided between the Departments of Physics and Chemistry and to be used for any purpose within the scope of these two departments.

THE MORTON L. "SONNY" LAVINE FOUNDATION is a memorial to Lieutenant Lavine of the United States Army, World War II. The income is to be used for the promotion of research in the Department of History.

THE LIBBEY FUND, bequeathed to the University by Mary E. Libbey, is to establish a fellowship in physical geography and to aid the Department in that field.

In addition to the Clark departmental funds listed above, several departments participate in national fellowship or traineeship programs; including

*Other  
Funds*

NATIONAL DEFENSE EDUCATION ACT, TITLE IV fellowships in geography, history and psychology.

NATIONAL SCIENCE FOUNDATION traineeships in biology, chemistry, economics, geography, mathematics, physics, and psychology.

PUBLIC HEALTH SERVICE fellowships and traineeships in biology, chemistry and psychology.

United States Office of Education, EDUCATION PROFESSIONS DEVELOPMENT ACT fellowships in Geography, Economics, and History. COMMITTEE ON GEOGRAPHY AND AFRO-AMERICA fellowships in Geography. HIGHER EDUCATION ACT, TITLE V-C fellowships.

UNITED STATES STEEL fellowship in economics.

For further information consult the chairman of departments or the Dean of the Graduate School.

*Housing  
and Board*

Off-campus rooms and apartments for both men and women are available in the immediate area of the University. For information concerning accommodations, write directly to the Office of Buildings and Grounds, which keeps a bulletin board of available off-campus rooms and apartments, or to the department concerned. Students should plan to arrive a few days before registration in order to arrange for housing because of the limited number of suitable off-campus apartments in the immediate area.

Graduate students are invited to take their board in the University dining halls under one of the food plans available. They will also find the Snack Bar in Jefferson Hall available for single meals.

*Infirmary  
and  
Insurance*

A low-cost insurance plan covering ordinary medical expenses and limited maternity benefit for married students is available through the University. Unless a student is protected by similar insurance, he must enroll in this plan since all graduate students must be covered by Health and Accident Insurance.

Graduate students are entitled to use of the Infirmary for minor first-aid needs.

# Graduate Tuition and Other Charges

Tuition and insurance charges are payable when the semester bill is received. Identification cards are provided each year of residence. A late registration fee is charged if registration is not completed by the end of the second week of the semester. Candidates who are not in residence must pay the non-resident fee until the requirements for the degree are fulfilled; non-payment will automatically terminate candidacy.

*Tuition:* (Full Program: 12 to 18 semester hours) \$1,225.00 per semester.

If less than a full program, the student will be charged according to the fraction of a program indicated by the Chairman of the department on the registration card.

*Schedule of  
Tuition and  
Other  
Charges*

Tuition for Special Graduate Students \$102.10 per semester hour

|                            |          |
|----------------------------|----------|
| Insurance: Single Students | \$ 33.00 |
| Student and Spouse         | \$135.00 |
| Family Plan                | \$165.00 |

*Diploma Fee:* (payable at the time the thesis or dissertation is deposited with the Registrar) :

Students who do not write a thesis or dissertation, including those receiving the degree on the alternative program, must pay this fee no later than the date on which theses are due in the registrar's office.

|                                                 |       |
|-------------------------------------------------|-------|
| Master's Degrees                                | 25.00 |
| Doctor of Philosophy and<br>Doctor of Education | 85.00 |

*Non-Resident Candidate Fees:* (payable on November 1 and March 1). If the thesis or dissertation is deposited with the Registrar before either date, no fee is charged for the semester.

The fees double upon renewal of candidacy.

|                     |                    |
|---------------------|--------------------|
| Master's Candidates | 12.50 per semester |
| Doctoral Candidates | 25.00 per semester |

(For the Master of Business Administration tuition and fees, see the "Evening College Catalog.")

A student who withdraws during the first two weeks of any semester is allowed a refund of 80 per cent on tuition; during the third week, 60 per cent; during the fourth week, 40 per cent; after the fourth week there is no refund. There is no refund on other charges, except board, when a student withdraws from the University.

*Refund*



# THE SUMMER SCHOOL



Intensive instruction in numerous fields of study is offered through two summer programs: a three-week intersession and a six-week summer session program. A variety of courses is offered for undergraduates, graduate students and teachers. A student may register for nine semester hours of credit each summer by attending the Intersession and the Summer Session. Evening courses are also available during the summer to all students to continue their education while engaged in day-time employment.

*Summer Study*

All courses offered in the Summer Session or Intersession programs are accepted at Clark for credit toward bachelor's degrees unless they are specifically limited in the description of the course. Many courses count toward the degrees of Master of Arts, Master of Arts in Education and Doctor of Philosophy. However, approval for such courses should be obtained in advance from the student's major department.

*Degrees and  
Credit*

Graduate students formally registered in the Summer School may, with the approval of their major department, enroll in thesis courses under the direction of regular members of the staff.

A student may carry in a normal program one course in the Intersession and two courses in the Summer Session. Permission to carry an additional course may be granted but only in exceptional cases and with approval in writing prior to registration.

Detailed information concerning the Summer Session and Intersession are contained in a Summer School catalog which may be requested from the director of the Summer School.

*Summer  
School  
Catalog*



**THE  
EVENING  
COLLEGE**



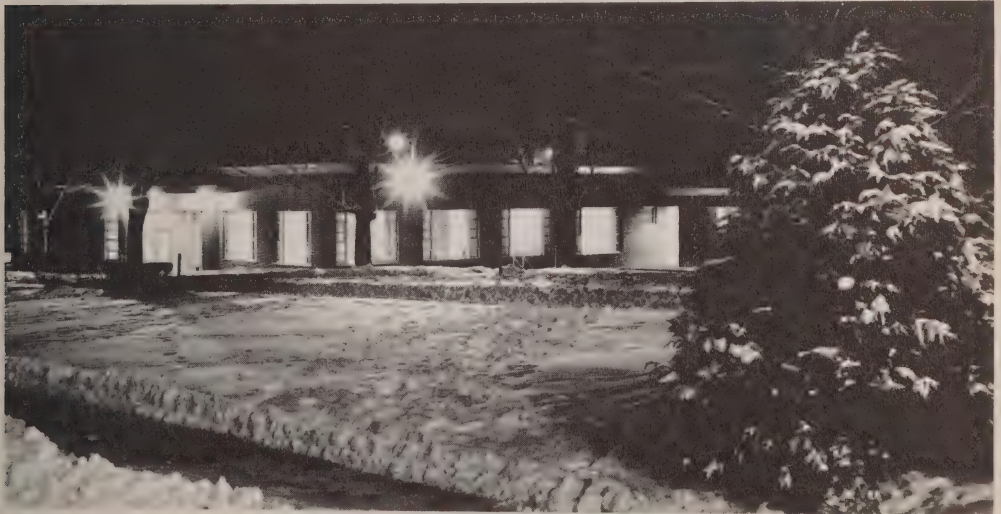
# The Evening College

The Evening College, established in 1953 as an institution devoted to adult learning, has three primary functions. With the conviction that education in our modern society must be a life-long process, it provides university education for adults of all ages who seek further knowledge and personal development through selected studies in the broad areas of the liberal arts. Further, in recognition of the rapidly developing and changing needs of business and the professions, it provides courses designed to help working men and women improve their occupational skills and to prepare for positions of increased responsibility.

Secondly, the Evening College provides an opportunity for adults to earn the bachelor's degree, exclusively by evening study, through programs planned to meet the unique educational needs of the mature person. Formal programs are available leading to the degree of Bachelor of Science in either general studies or business administration and to the degree of Bachelor of Fine Arts. The Evening College also offers the Diploma in General Studies after completion of a short formal program in liberal education designed specifically for adults.

Finally, as a community service, the Evening College organizes frequent non-credit short courses, institutes and seminars,

*General  
Information*



which are tailored to the specific needs of various civic, professional and business groups.

Students may be enrolled for either individual courses or formal programs of study.

*Individual Courses:* Admission to individual courses in the Evening College is open to all interested adults seeking to further their education. High school graduation is not required but desirable. Continued attendance is contingent upon evidence of ability to profit from the instruction offered. Advanced courses for which prerequisite courses or experience are indicated are open only to persons who meet the stated requirements.

*Admission*

*Admission To Formal Programs:* Adults applying for a formal program of study in the Evening College will be required to submit records of their previous schooling prior to admission. Except under unusual circumstances applicants must possess a diploma from an accredited high school. Applicants for the Bachelor of Science degree or the Diploma in General Studies who have not attended college previously may arrange to have their high school records forwarded to the Evening College on forms supplied to them on request to the college. Adults who have attended other colleges should request that their transcripts be forwarded directly to the Evening College.

*Evening  
College  
Catalog*

Detailed information about the Evening College is contained in a special catalog which may be requested from the director of the Evening College.



**MASTER  
OF  
BUSINESS  
ADMINISTRATI  
PROGRAM**



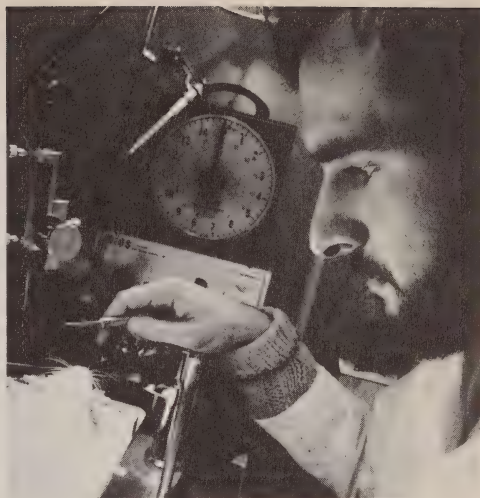
The Master of Business Administration degree is offered through the Division of Business Administration and may be pursued on a full-time or a part-time basis.

The program consists of a 19 semester-hour core curriculum plus a 30 semester-hour graduate curriculum. The core is designed to acquaint the student with internal and environmental institutions of business, the abstract notions of the production and distribution of valuable goods, the analytic tools available and the functional fields of business. An undergraduate may complete some or all the core requirements in his junior and senior years enabling him to earn the M.B.A. in one year after receiving the baccalaureate.

So that course interrelationships will be most meaningful, the graduate curriculum is oriented to the central theme of all purposive activity, namely the decision-making process. In this respect, the discourse is germane not only to business, but to a variety of non-profit organizations as well.

Completion of the graduate curriculum enables the student to utilize the latest developments in the functional field of interest to himself, and it is expected that he will envision an opportunity to apply these concepts, theories, analytic methods and techniques to some aspect of his own business experience in an original manner or to extend the boundary of knowledge.

Complete information is in the *MBA Bulletin* and may be obtained from the Director of the Division of Business Administration.



## **DEPARTMENTS AND COURSES**

## Departments and Courses

### *Department Courses*

The course offerings of each department are listed in their numerical sequence. The announced courses are subject to modification and change.

### *Course Numbering System*

Each course is indicated by number and title. A course number, unmodified by "a" or "b" indicates a year-course, one which continues through two semesters of an academic year. A course number followed by an "a" refers to a half-course usually offered in the first semester. A number followed by a "b" refers to a half-course usually offered in the second semester.

Two-semester courses are divisible unless an explicit statement of indivisibility appears in the course statement. Courses which are indivisible normally require the successful completion of the first semester as a prerequisite to entering the second semester, and students who register for an indivisible course must complete the second semester of the course before receiving credit for the first.

### *Course Sequence*

Courses are arranged, in general, in sequence progressing from elementary to advanced courses.

Courses which are *opened to freshmen* are designated by the letter "F" before the course number.

Courses which are *primarily for undergraduates* are designated by numbers beginning with the numeral 1.

Courses for *advanced undergraduates and graduate students* are designated by numbers beginning with the numeral 2.

Courses which are *primarily for graduate students* are designated by numbers beginning with the numeral 3.



# Anthropology

## UNDERGRADUATE PROGRAM

Courses in anthropology and related subjects are offered in several departments at Clark. Students interested in this field may major in one of these departments and register for courses in anthropology under programs of study planned in consultation with their departmental advisors. Although a major in anthropology as such is not offered, the undergraduate courses available at Clark provide an adequate background for graduate study. A list of such courses is given below. A full description of each course will be found in the section of this catalog devoted to the department under which the course is offered.

Field work opportunities are available to qualified students during January Study. The area concentration is particularly focused upon the Caribbean.

For further information or for guidance concerning graduate study, see Mr. Gerber.

## COURSES

|                                  |                                                                   |                  |
|----------------------------------|-------------------------------------------------------------------|------------------|
| Sociology F111a.                 | BLACK CULTURES AND SOCIETIES IN THE NEW WORLD.                    | Mr. Remy.        |
| Sociology F112b.                 | SEMINAR: POLITICAL MOVEMENTS IN BLACK SOCIETIES OF THE NEW WORLD. | Mr. Remy.        |
| Sociology F12b (Geography F12b). | SOCIAL ANTHROPOLOGY.                                              | Mr. Gerber.      |
| Sociology 22a.                   | ANTHROPOLOGICAL FIELD METHODS.                                    | Mr. Gerber.      |
| Sociology 223a.                  | PSYCHOLOGICAL ANTHROPOLOGY.                                       | Mr. Gerber.      |
| Sociology 276b.                  | ETHNOGRAPHY OF THE CARIBBEAN. (Not offered, 1970-71)              | Mr. Gerber.      |
| Biology 12a.                     | COMPARATIVE ANATOMY.                                              | Mr. Nunnemacher. |
| Geography 17b.                   | INTRODUCTION TO CULTURAL GEOGRAPHY.                               | Mr. Blaut.       |
| Geography 269b.                  | ETHNO-GEOGRAPHY.                                                  | Mr. Blaut.       |
| Geography 272a.                  | RELATIONS OF CULTURE AND ENVIRONMENT.                             | Mr. Bowden.      |
| Geography 273b.                  | SETTLEMENT GEOGRAPHY.                                             | Mr. Bowden.      |
| Geography 274b.                  | PEASANTS                                                          | Mr. Blaut.       |
| Linguistics 115.                 | MAN AND LANGUAGE. (Not offered, 1970-71)                          | Mr. Reid.        |
| Psychology 207a, b.              | BEHAVIORAL SCIENCE AND THE ENVIRONMENT.                           | Mr. Stea.        |



## Biology

### DEPARTMENT FACULTY

Rudolph F. Nunnemacher, Ph.D., *Professor of Zoology,*

*Department Chairman*

Vernon Ahmadjian, Ph.D., *Professor of Botany*

Joseph C. Curtis, Ph.D., *Professor of Zoology*

John T. Reynolds, Ph.D., *Professor of Microbiology\**

John J. Brink, Ph.D., *Associate Professor of Biochemistry*

Nicholas S. Thompson, Ph.D., *Assistant Professor of Biology and Psychology*

Bruce C. Coull, Ph.D., *Assistant Professor of Zoology*

Behrus Jahan-Parvar, M.D., *Assistant Professor of Physiology*

H. William Johansen, Ph.D., *Assistant Professor of Botany*

George Camougis, Ph.D., *Professor (Affiliate) of Physiology*

Warren Litsky, Ph.D., *Professor (Affiliate) of Microbiology*

Harris Rosenkrantz, Ph.D., *Professor (Affiliate) of Biochemistry*

Ian D. K. Halkerston, Ph.D., *Associate Professor (Affiliate) of*

*Endocrinology*

Harry L. Jacobs, Ph.D., *Associate Professor (Affiliate) of Physiology*

Fernand G. Peron, Ph.D., *Associate Professor (Affiliate) of Biochemistry;*

*Director of Steroid Training Program*

Robert N. Boyes, Ph.D., *Assistant Professor (Affiliate) of Biology*

Joseph H. McSweeney, Ph.D., *Lecturer in Biology*

\*On leave of absence, 1970-71.

### UNDERGRADUATE PROGRAM

A departmental major must take Biology 108 and one of the following courses: Biology 109, Biology 110 or Biology 111; and in addition, five or six advanced semester courses for a total of 26 semester hours in Biology. In related fields, the major must take Chemistry 11, Physics 10a, 11b, and at least one additional year course in chemistry, physics, or geology for a total of 24 semester hours. Additionally, the major must take a full year of Calculus (Mathematics 12). None of the aforementioned courses may be taken on a "pass-no record" option.

At least 36 semester hours of a major's program must be taken from courses outside the field of biology, chemistry, geology, mathematics, physics, and psychology 160, 222, 328.

### HONORS PROGRAM

An Honors Program is available to especially well qualified majors and encourages the student to engage in an independent research project during the senior year. Frequently the Honors Project is the continuation of research begun during the summer under the National Science Foundation Undergraduate Research Participation Program.

### GRADUATE PROGRAM

The department offers courses leading to Master of Arts and Doctor of Philosophy degrees in specialized phases of bacteriology, biochemistry, botany, cytology, physiology and zoology. Admission to the graduate program assumes adequate preparation in the

basic sciences, an overall undergraduate record of B or better, and satisfactory standing in the Graduate Record Examination. Tuition scholarships and Teaching Assistantships are available. Detailed information can be obtained from the department chairman.

*Master of Arts:* The program usually requires three or four semesters of academic work and includes teaching experience and research culminating in an acceptable thesis.

*Doctor of Philosophy:* The requirements are identical with those of the University and can be found in the catalog section on The Graduate School and includes teaching experience. The student's program is planned according to his needs with his program director.

#### TRAINING PROGRAM FOR STEROID BIOCHEMISTRY

A Training Program for Steroid Biochemistry has been established at the University through the cooperation of the Department of Biology and the Worcester Foundation for Experimental Biology with the support of the National Cancer Institute and the U.S. Public Health Service. Post-doctoral fellowships are available for persons possessing the Ph.D., M.D., or equivalent training. Further information may be obtained from the *Program Director, Dr. Fernand G. Peron.*

#### NEUROLOGICAL SCIENCES TRAINING PROGRAM

This program is supported by the U. S. Public Health Service and carries fellowships at both the pre- and post-doctoral level. Training is offered in Neurophysiology, Neurochemistry, Neuroanatomy and related areas. For further information contact the *Program Director, Dr. R. F. Nunnemacher.*

#### COURSES

##### F108a. INTRODUCTION TO THE BIOLOGICAL SCIENCES.

The course provides a common basis to non-majors and prospective majors without advanced preparation in biology for all further course work in the department. It is concerned with the major generalizations of biology, with emphasis on cellular and molecular mechanisms. The laboratory sequence introduces some of the methodology that permits the student to participate in a scientific endeavor and emphasizes the analysis and interpretation of data. Three lectures and one laboratory period per week.

*Four semester hours.*

##### F109b. MICROBIOLOGY.

**Not offered, 1970-71.**

A survey of microorganisms, their activities and the methods by which they are studied. Prerequisite: Biology 108 or its equivalent. Three lectures and one laboratory period per week.

*Four semester hours.*

Mr. Reynolds.

##### F110b. BOTANY.

A survey of the taxonomy, structure, and physiology of plants. Prerequisite: Biology 108 or its equivalent. Three lectures and one laboratory period per week.

*Four semester hours.*

Mr. Johansen.

##### F111b. ZOOLOGY.

A survey treating the evolution of the major animal phyla with emphasis on structural and functional adaptations, and principles of ecology. Prerequisite: Biology 108 or its equivalent. Three lectures and one laboratory period per week.

*Four semester hours.*

Mr. Nunnemacher.



**112a. COMPARATIVE ANATOMY.**

A comparative study of the morphology of the vertebrates with emphasis on the evolution of animals from fish to man. Prerequisite: Biology 111. Two lectures and two laboratory periods per week.

*Four semester hours.*

Mr. Nunnemacher.

**114a. PHYCOLOGY.**

The structure, function and interrelationships of fresh-water and marine algae will be studied with a view to understanding their role in the biosphere. Prerequisite: A course in botany or consent of the instructor. Three lectures and one laboratory period per week.

*Four semester hours.*

Mr. Johansen.

**115b. SYSTEMATIC BOTANY.**

Taxonomy and classification of flowering plants, with emphasis on New England flora. A collection of 100 plants is required as well as a two-day spring collecting trip to the Berkshires. Three lectures and one laboratory period per week.

*Four semester hours.*

Mr. Ahmadjian.

**117a. PRINCIPLES OF ECOLOGY.**

A course in basic ecological theory governing organism-environment interrelationships. Population dynamics, energy flow, zoogeography, community ecology, as well as ecological methods and environmental problems will be included. Prerequisites: Biology 108 or its equivalent. Two lectures and a laboratory period per week.

*Three semester hours.*

Mr. Coull.

**118a. GENETICS.**

Principles and problems of genetics.

*Three semester hours.*

Mr. McSweeney.

**120b. HISTOLOGY.**

The microscopic anatomy of tissues and organs of mammals. Prerequisite: Biology 112. Two lectures and two laboratory periods per week.

*Four semester hours.*

Mr. Nunnemacher.

**137b. CELLULAR BIOLOGY.**

The cell as a structural and functional unit. Introduction to the physiochemical properties and metabolic roles of molecules and macromolecules of cellular origin. Discussion of the roles of the nucleus and cytoplasm in the regulation of cellular processes. Three lectures per week. Prerequisite: Biology 108 or equivalent.

*Three semester hours.*

Mr. Curtis.

**210b. PLANT STRUCTURE.**

Cells, tissues and organs of vascular plants will be studied with a view to understanding how these parts integrate to form the whole plant. Prerequisite: A course in botany or consent of instructor. Three lectures and one laboratory period per week.

*Four semester hours.*

Mr. Johansen.

**215b. INVERTEBRATE ZOOLOGY.**

A detailed survey on the diversity of invertebrates. Anatomical and histological examination of selected types. Concepts of evolution and speciation. Prerequisite: two semesters of biology or consent of instructor. Three lectures and one laboratory period per week.

*Four semester hours.*

Mr. Coull.

**221b. EMBRYOLOGY.**

**Not offered, 1970-71.**

Consideration of the fundamentals of vertebrate embryology. Two lectures and two laboratory periods per week. Prerequisite: Biology 112.

*Four semester hours.*

Mr. Nunnemacher.

**224b. NEUROANATOMY.**

The structural and functional organization of the central nervous system of man. Prerequisite: Biology 112 or consent of instructor. Three lectures per week.

*Three semester hours.*

Mr. Jahan-Parvar.

**225a. ELECTRON MICROSCOPY.**

Introduction to the principles of electron optics, use of the electron microscope, preparation of specimens and the techniques of electron microscopy applicable to biological investigations. Two lectures and two laboratory periods per week. Prerequisites: permission of the instructor.

*Four semester hours.*

Mr. Curtis.

**231b. BACTERIAL PHYSIOLOGY.**

**Not offered, 1970-71.**

Lecture topics and laboratory exercises selected to demonstrate chemical and physical principles underlying bacterial activities. Two lectures and two laboratory periods per week. Prerequisites: Biology 232 and consent of the instructor. Biology 240 is recommended.

*Four semester hours.*

Mr. Reynolds.

**232a. BACTERIOLOGY.**

**Not offered, 1970-71.**

The biology of the bacteria and certain related forms with emphasis on their ecological role. Prerequisites: Biology 109, Chemistry 13, and consent of instructor. Two lectures and two laboratory/discussion periods per week.

*Four semester hours.*

Mr. Reynolds.

**240b. GENERAL PHYSIOLOGY.**

Introduction to the physical and chemical phenomena underlying the functions common to living organisms. Two lectures and two laboratory periods per week. Prerequisites: Biology 137, Chemistry 11 and Physics 10, 11.

*Four semester hours.*

Mr. Jahan-Parvar.

**241b. ENDOCRINOLOGY.**

General principles of vertebrate endocrinology.

*Three semester hours.*

Mr. Halkerston.

**242a. COMPARATIVE ANIMAL PHYSIOLOGY.**

**Not offered, 1970-71.**

**247b. SEMINAR IN NEUROPHYSIOLOGY I, II.**

A seminar on the principles of transmission, integration and storage of information in neuronal pathways and other considerations of the nervous system. Prerequisite: A course in Neurophysiology or its equivalent or consent of the instructor.

*Three semester hours.*

Mr. Jahan-Parvar.

**248a. SENSORY PHYSIOLOGY.**

A seminar on the principles of organization and function of invertebrate and vertebrate sensory receptors. Prerequisite: Biology 240.

*Three semester hours.*

Mr. Jahan-Parvar.

**249b. NEUROPHYSIOLOGY.**

**Not offered, 1970-71.**

Physiology of central and peripheral nervous systems, receptors and muscles, considered in both vertebrates and invertebrates. Three lectures and one laboratory period per week. Prerequisite: Biology 240 or consent of the instructor.

*Four semester hours.*

Mr. Jahan-Parvar.

**250. PRINCIPLES OF APPLIED IMMUNOLOGY.**

**Not offered 1970-71.**

An introduction to the basic principles, problems and theories concerning the immunological behavior of man and the animal kingdom, familiarizing the student with the experimental evidence upon which are based the present concepts of immune mechanisms. The course is oriented to demonstrate the basic methods of experimental immunology and the application of such methods to biological problems.

*Three semester hours.*

**257b. BIOPHYSICS.**

**Not offered 1970-71.**

Consideration of the physical properties of biological system. Influence of various physical agents upon biological structure and function. Physical methods of analysis of biological macromolecules. Three lectures per week. Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Curtis

**260a, b. SPECIAL PROBLEMS.**

Advanced semi-independent study of an approved topic under the direction of a departmental member. Consent of instructor required. Required for honors in biology.

*Three or four semester hours.*

Staff.

**268b. PRINCIPLES OF PHARMACOLOGY.**

**Not offered, 1970-71.**

This course is intended to acquaint the student or research worker with established principles and the more important phenomena involved in the study of pharmacology. Particular emphasis is placed on the quantitative aspects of the interaction of chemical compounds or drugs with biological systems. The principal pharmacological actions of several important drugs are illustrated.

*Three semester hours.*

Mr. Camougis.

**270. BIOCHEMISTRY.**

The principles of mechanisms of biochemical reactions in an understanding of the metabolism of foodstuffs and the role of enzymes, nucleic acids and hormones. An acquaintance with the instrumentation in biochemical research will be presented. Prerequisite: Chemistry 13. Three lectures, one laboratory per week.

*Four semester hours each semester.*

Mr. Brink.



**271b. BIOCHEMISTRY OF NUCLEIC ACIDS.**

The chemical and physical properties of RNA and DNA derived from various sources will be considered with respect to their isolation, separation and characteristics. The functional role and biological significance of the nucleic acids in subcellular organelles will be examined. Prerequisite: Biology 270 or consent of instructor.

*Three semester hours.*

Mr. Brink.

**272a. METABOLIC PATHWAYS IN BIOCHEMISTRY.**

The course is concerned with a discussion of the biosynthetic pathways of essential biological materials i.e. amino acids, lipids, vitamins and minerals in those living systems, plant and animal, capable of producing them. In addition their biochemical importance in mammals will be stressed. Prerequisite: Biology 270.

*Three semester hours.*

Mr. Rosenkrantz.

**273b. SEMINAR IN NEUROCHEMISTRY.**

The metabolic aspects of brain amines and biopolymers will be considered in relation to neural function. Effects of drugs on memory processes will be discussed in terms of biochemical mechanisms. Prerequisite: Biochemistry 270 or consent of instructor.

*Three semester hours.*

Mr. Brink.

**275b. CLINICAL BIOCHEMISTRY.**

Not offered, 1970-71.

Clinical or diagnostic biochemistry features a study of biochemical parameters in health and disease determined on blood, urine and other biological fluids. This course will encompass clinically significant facts pertaining to absorption, transport, distribution, function, metabolism and excretion of certain proteins, lipids, carbohydrates, hormones, enzymes, vitamins and minerals. Quantitative detection procedures will be discussed and demonstrated. Prerequisite: Chemistry 11, Biology 108, 111, or 270 or its equivalence in laboratory training or consent of instructor. Three lectures and demonstration per week.

*Three semester hours.*

Mr. Rosenkrantz.

**300. READINGS AND RESEARCH IN BIOLOGY.**

*Three to four semester hours.*

Staff.

**325a. SEMINAR IN ULTRASTRUCTURE.**

Discussion of the structure of macromolecules and subcellular organelles in relation to their biological functions. Evidence obtained by a variety of physical and chemical methods will be considered, particular emphasis being placed on electron microscopic studies. Consent of instructor required.

*Three semester hours.*

Mr. Curtis.

**332b. SEMINAR IN BACTERIOLOGY.**

Not offered, 1970-71.

Selected topics in bacterial ecology and physiology. Consent of instructor required.

*Three semester hours.*

Mr. Reynolds.

**341a. SEMINAR IN ENDOCRINOLOGY.**

Not offered, 1970-71.

*Three semester hours.*

Mr. Curtis.

**350. GRADUATE SEMINAR.**

Staff.

**355a. PROBLEMS IN BEHAVIORAL PHYSIOLOGY.**

Topics will be chosen in which interdisciplinary substantive material and methods from neuro-physiology, endocrinology, nutrition, sensory and regulatory physiology, and psychology (learning, modification, and sensation and perception) will be applied to simple behavioral systems in the whole organism. Prerequisite: Biology 240.

*Three semester hours.*

Mr. Jacobs.

**360. MASTER'S THESIS.**

Staff.

**390. DOCTORAL DISSERTATION.**

Staff.

## Biomedical Engineering

The Program in Biomedical Engineering is a graduate program under the joint sponsorship of Clark University and Worcester Polytechnic Institute. The aim of the program is to combine the resources of the two institutions to provide special education in this rapidly developing interdisciplinary area. Students entering the program must have a bachelor's degree in mathematics or one of the basic or engineering sciences. The master's program will include a minimum of five full courses taken at both institutions. All students will be expected to achieve some basic knowledge in biology, chemistry, engineering, mathematics and physics. Since a thesis on research is also required, the program will normally require at least two years of study. In general, the requirements for the degree will be consistent with the requirements for a master's or doctoral degree at both institutions. The detailed requirements for each student will be worked out by a Committee on Biomedical Engineering made up of faculty members from both institutions. Students enrolled at Clark will receive an M.A. or Ph.D. in Biology, the actual degree noting the cooperation of W.P.I. Conversely, students enrolled in the first instance at W.P.I. will receive the M.S. or Ph.D. in Biomedical Engineering, with the cooperation of Clark indicated on the degree.

For further information, write to: The Director, Biomedical Engineering Program, Clark University, Worcester, Massachusetts 01610.

## Chemistry

### DEPARTMENT FACULTY

Harry C. Allen, Jr., Ph.D., *Professor of Chemistry,*

*Department Chairman*

Edward N. Trachtenberg, Ph.D., *Professor of Chemistry*

Daeg S. Brenner, Ph.D., *Associate Professor of Chemistry*

Karen L. Erickson, Ph.D., *Associate Professor of Chemistry*

Wen-Yang Wen, Ph.D., *Associate Professor of Chemistry\*\**

Allan M. Zwickel, Ph.D., *Associate Professor of Chemistry*

Paul T. Inglefield, Ph.D., *Assistant Professor of Chemistry*

Robert I. Morse, Ph.D., *Assistant Professor of Chemistry*

\*\*On leave of absence, 1970-71.

## UNDERGRADUATE PROGRAM

In offering a variety of introductory courses in the major branches of modern chemistry, the department seeks to satisfy the needs and desires of (1) those interested in pursuing a career in chemistry, (2) those in related science areas, the proper understanding of which requires a background in chemistry, and (3) the non-scientists who want some knowledge of chemistry as part of their liberal education. In addition to these courses, a large number of more specialized subjects are treated in advanced courses.

The requirements for the chemistry major are eight semesters of chemistry beyond Chemistry 11, two semesters of physics, and two semesters of mathematics beyond Mathematics 11. Biochemistry, advanced mathematics, and/or advanced physics courses may be substituted for two semesters of chemistry. As credit toward the major, Chemistry 173 is inadmissible and only one semester of Chemistry 214 or 215 may be used. In addition, all students must satisfactorily complete 36 semester hours outside of Group A and courses in statistics.

Majors are urged to pursue a program leading to certification by the American Chemical Society which requires Chemistry 13, 140, 180, 190, 212, and two advanced level courses in any area of chemistry (including biochemistry). Students planning graduate study in chemistry or additional professional training in the sciences are urged to take Chemistry 113, 200, 230, and/or advanced mathematics and physics courses depending on the area of interest. A reading knowledge of German, French, or Russian is also recommended.

The usual course sequence has at least Chemistry 11 and 13, Mathematics 12, and Physics 10a, 12b or 11b completed by the end of the second year. Chemistry 180, 190, 113, and 140 are usually taken the junior year. It is advantageous to take advanced mathematics or physics courses and/or biochemistry at this time as well. Honors or Special Projects may be started after completion of Chemistry 180. Chemistry 200, 212, or 230, as well as other advanced level courses and Honors or Special Projects are normally taken during the senior year.

An entering student with a sound background in chemistry is encouraged to take a placement exam at the beginning of the academic year. Satisfactory performance on this examination can satisfy the Chemistry 11 prerequisite for Chemistry 13. This will permit completion of the requirements for the major no later than the junior year, leaving the senior year open for more sophisticated pursuits. Any student considering a chemistry major is urged to arrange for a conference with a member of the department as early as possible, preferably during the first few days of the freshman year. However, it should be noted that the major requirements can be met even if no sciences courses have been taken freshman year.

## GRADUATE PROGRAM

The department offers programs leading to the degrees of Master of Arts and Doctor of Philosophy with specialization in various fields of chemistry and in chemical physics. Entering students must take placement examinations in the basic areas of undergraduate instruction: these examinations are used solely for the purpose of arriving at a satisfactory program of courses. Up to one year's equivalent of teaching apprenticeship will be required of all candidates for advanced degrees.

The requirements for the Master's degree are essentially those of the University. The course requirements for the Ph.D. are as follows:

1. All students must demonstrate satisfactory performance (B— or better) in Chemistry 230a, 323a, 340b and 379b. Students specializing in organic chemistry may substitute 200a for 340b.



2. All students must demonstrate satisfactory performance (B— or better) in at least two of the following courses: Chemistry 212b, 242b, 280b, 322b, 333a, 335b, 361a, and 369b.

3. Additional courses may be required by the student's research supervisor.

Qualifying and preliminary examinations must be passed, and the Department language requirement must be met. For further details on formal requirements consult the appropriate departmental publications.

Graduate scholarships teaching assistantships, research fellowships, NDEA fellowships and NSF traineeships are available. Further information on these awards may be obtained from the department chairman.

## COURSES

### F11. GENERAL CHEMISTRY.

Systematic study of the elements and their principal compounds and the fundamental laws and theories of chemistry. Three lectures and four laboratory hours per week.

Divisible with consent of the instructor.

*Four semester hours each semester.*

Mr. Allen.

### 13. ORGANIC CHEMISTRY.

Lectures on the principles of organic chemistry and a laboratory study of the preparation and properties of important organic compounds. Three lectures and four laboratory hours per week. Laboratory fee. Prerequisite: a grade of C— or better in Chemistry 11.

*Four semester hours each semester.*

Mr. Trachtenberg, Miss Erickson.

### 140b. ANALYTICAL CHEMISTRY.

Theoretical principles and technical methods employed in determining the composition of matter. Two lectures and six laboratory hours per week throughout the semester. Prerequisite: Chemistry 11.

*Four semester hours.*

Mr. Morse.

### 113a. QUALITATIVE ORGANIC ANALYSIS.

Laboratory study of the identification of organic compounds by both classical and modern instrumental techniques. Prerequisites: Chemistry 13 or consent of the instructor. One hour conference and 7 hours of laboratory per week.

*Three semester hours.*

Miss Erickson.

### 180a. PHYSICAL CHEMISTRY I.

Principles of physical chemistry applied to gases, liquids and solids; chemical thermodynamics; solution chemistry. Three lectures and three laboratory hours per week. Prerequisites: Physics 11b or 12b, Mathematics 12, a grade of C or better in Chemistry 11 or 13 or permission of instructor; Chemistry 13 and 14a may be taken concurrently. Additional course work in mathematics is recommended.

*Four semester hours each semester.*

Mr. Inglefield, Mr. Morse.

### 190b. PHYSICAL CHEMISTRY II.

Electrode processes, chemical kinetics and atomic and molecular spectroscopy. Prerequisite: Chemistry 180a. Three lectures and three laboratory hours per week.

*Four semester hours.*

Mr. Inglefield, Mr. Morse.

**200a. PHYSICAL CHEMISTRY III.**

Elementary quantum-mechanical treatment of the structure of nuclei, atoms and molecules. Three lectures per week. Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Brenner.

**212b. INORGANIC CHEMISTRY.**

Theoretical and descriptive inorganic chemistry. Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Zwickel.

**214. SPECIAL PROJECTS.**

Individual work of an investigative nature which may include a search of chemical literature as well as laboratory work.

*Three semester hours each semester.*

Staff.

**215. HONORS COURSE.**

Primarily for majors seeking departmental honors in chemistry. A laboratory research project and participation in departmental seminar.

*Three semester hours each semester.*

Staff.

**230b. PHYSICAL ORGANIC CHEMISTRY.**

Fundamentals of organic chemistry. Molecular structure, acidity and basicity, kinetics and mechanisms with emphasis on the most recent advances in organic chemical theory. Prerequisites: Chemistry 13, 180a, 190b or consent of the instructor.

*Three semester hours.*

Mr. Trachtenberg.

**242b. NUCLEAR SCIENCE**

Fundamentals of nuclear chemistry and physics; production, isolation, identification and measurement of radioactive atoms. Three lectures and three laboratory hours per week. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Brenner.

**280b. INSTRUMENTAL METHODS.**

The principles and application of modern instrumental techniques to the separation and analysis of mixtures and for the characterization of pure compounds. Two lectures and six laboratory hours per week. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Brenner.

**300. RESEARCH.**

*Three to fifteen semester hours each semester.*

Staff.

**322b. THERMODYNAMICS.**

Applications of classical thermodynamics to chemical systems.

*Three semester hours.*

Mr. Morse.

**323a. STATISTICAL MECHANICS.**

Statistical mechanical analogs of thermodynamic functions and their application to chemical systems. Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Wen.

**333a. SYNTHETIC ORGANIC CHEMISTRY.**

Lectures on synthesis of organic molecules emphasizing scope and limitations of general methods, mechanism and stereochemistry. Synthesis of carbon to carbon bonds, oxidation and reduction. Prerequisite: Chemistry 230a, or consent of the instructor. Offered in alternate years.

*Three semester hours.*

Miss Erickson.

**335b. NATURAL PRODUCTS.**

The chemistry of selected naturally occurring compounds. Structure determination, synthesis, mechanistic interpretation of exotic transformations, and biogenetic theory. Prerequisite: consent of the instructor. Offered in alternate years.

*Three semester hours.*

Miss Erickson.

**340b. QUANTUM CHEMISTRY.**

Elementary quantum mechanics of simple systems, properties of wave functions, approximation methods for complex systems.

*Three semester hours.*

Mr. Morse.

**341a. ADVANCED QUANTUM CHEMISTRY.**

Approximation methods, atomic states, spectroscopy and molecular methods. Prerequisite: Chemistry 340b or consent of the instructor.

*Three semester hours.*

Mr. Morse.

**344a. SELECTED TOPICS IN ADVANCED NUCLEAR CHEMISTRY. Not offered, 1970-71.**

Discussion of current experimental and theoretical literature in nuclear reactions, fission, and nuclear spectroscopy. Prerequisite: Chemistry 242b or equivalent.

*Three semester hours.*

Mr. Brenner.

**350. SEMINAR.**

Reports on research work and discussions of recently published work. No credit.

Guest Lecturers, Staff and Graduate Students.

**360b. COORDINATION COMPOUNDS.**

Chemical and physical properties of complexes, including theories of coordination, stereo-isomerism, reaction mechanisms and solution stabilities. Offered in alternate years.

*Three semester hours.*

Mr. Zwickel.

**361a. MOLECULAR STRUCTURE.**

Physical methods relevant to the determination of the structure of molecules (x-rays, electron diffraction, nuclear magnetic resonance, electronic properties, etc.). Prerequisite: consent of the instructor. Offered in alternate years.

*Three semester hours.*

Mr. Inglefield.



**369a. ELECTRONIC SPECTROSCOPY.**

Not offered 1970-71.

Introduction to the studies of ultraviolet and visible absorption spectra as well as emission spectra. Prerequisite: consent of the instructor. Offered in alternate years.

*Three semester hours.*

Mr. Wen.

**379b. SPECIAL TOPICS.**

Research seminars; reports by graduate students.

*Three semester hours.*

Staff.

**380. RESEARCH CONFERENCE.**

Informal reports of research work being done in the laboratory. No credit.

Staff and Graduate Students.

## Classics

**DEPARTMENT FACULTY**

Claude W. Barlow, Ph.D., *Professor of Classics*

Joseph E. Sheerin, Ph.D., *Visiting Professor of Classics*

**UNDERGRADUATE PROGRAM**

Undergraduate courses are provided for the acquisition of a reading knowledge of Greek and Latin and for the study of literary masterpieces in those original languages. Courses also are offered for the candidate who wishes to major in Latin. The major should include Latin 13 during the freshman year, three advanced Latin courses and three courses in related fields to be approved by the department. In addition, at least 36 semester hours of a major's program must be taken from other than Group C and Group D courses. Other courses, given entirely in English, deal with phases of the Greek and Roman civilizations. Students who wish to elect Elementary Greek or Intermediate Latin should consult the department as far in advance as possible since these courses are not offered every year.

Clark students may also take for credit appropriate courses in Greek or Latin offered by the College of the Holy Cross and Assumption College.

**COURSES****Greek****F11. ELEMENTARY GREEK.**

Greek grammar through forms, syntax, vocabulary and reading; selections from Xenophon's *Anabasis* or other simple prose. Open to freshmen. Indivisible course.

*Three semester hours each semester.*

Mr. Barlow.

**12. ATTIC GREEK PROSE: HOMER'S *Iliad*.**

Not offered, 1970-71.

Prerequisite: Greek 11.

*Three semester hours each semester.*

**13. GREEK DRAMA.**

Not offered, 1970-71.

Prerequisite: Greek 12 or the equivalent.

*Three semester hours each semester.*

**F123a. GREEK CIVILIZATION.**

Lectures, readings and discussion on the history, literature, art, religion and government of ancient Greece, with emphasis on the elements which have contributed most to Western civilization. Given in English.

*Three semester hours.*

Mr. Barlow, Mr. Sheerin.

**Latin**

**F11. ELEMENTARY LATIN.**

**Not offered, 1970-71.**

*Three semester hours each semester.*

**F12. INTERMEDIATE LATIN: VIRGIL's *Aeneid*.**

**Not offered, 1970-71.**

This course will begin with an intensive review of forms, syntax and vocabulary for at least seven weeks. Prerequisite: two years of secondary school Latin. Offered in alternate years.

*Three semester hours each semester.*

**F13. CATULLUS AND PLAUTUS: TERENCE AND HORACE.**

Prerequisite: Latin 12 or three years of secondary school Latin.

*Three semester hours each semester.*

Mr. Barlow.

**15. ROMAN PHILOSOPHERS; SILVER AGE LATIN.**

Prerequisite: Latin 13.

*Three semester hours each semester.*

Mr. Barlow.

**17. POETS OF THE AUGUSTAN AGE: ROMAN HISTORIANS.**

**Not offered, 1970-71.**

*Variable credit.*

**19. SURVEY OF LATIN LITERATURE.**

**Not offered, 1970-71.**

*Variable credit.*

**88. SPECIAL STUDIES.**

*Variable credit.*

Mr. Barlow.

**199. LATIN HONORS.**

*Variable credit.*

Mr. Barlow.

**F123b. ROMAN CIVILIZATION.**

Lectures, readings and discussion on the history, literature, philosophy, art, religion, law and government of ancient Rome, with emphasis on the transmission of Greek civilization and the condition of the Roman Empire during the early years of Christianity. Given in English.

*Three semester hours.*

Mr. Barlow, Mr. Sheerin.

# Comparative Literature

## COMP. LIT. 18. LITERATURE AND THE NATURE OF MAN.

The course is designed to serve the student by providing him with an opportunity to investigate ideas held by outstanding literary artists of the Western World concerning the nature of man and his relation to the universe. The works are also to be studied as representative of the cultures of which they are products. The course is planned not only to introduce the student to a body of knowledge and experience held in common by educated men and women in our society but also to help him to clarify his thinking concerning certain basic problems and to develop attitudes that are both humane and creative. The subject matter discussed includes Sophocles' *Oedipus the King*, the *Book of Job*, Dante's *Divine Comedy*, Shakespeare's *King Lear*, Milton's *Paradise Lost*, Moliere's *Misanthrope*, Goethe's *Faust*, and selected poems of T. S. Eliot. All non-English works are read in translation. Classified as Group C course. Open to sophomores, juniors and seniors with the consent of the instructors. Successful completion of the first semester is normally required for admission to the second semester.

*Three semester hours each semester.*

Mr. King, Mr. Anderson.

## COMP. LIT. 19a. SURVEY OF THE HEBREW SCRIPTURES — PENTATEUCHAL AND HISTORICAL BOOKS.

## COMP. LIT. 20a. SURVEY OF THE HEBREW SCRIPTURES PROPHETIC AND WISDOM LITERATURE.

An analysis of the relevant texts in terms of their historical, social and religious background and their role in shaping the thinking of the Biblical Age. *Comp. Lit. 19a is a prerequisite for Comp. Lit. 20a.*

*Three semester hours each course.*

Rabbi Klein

## ENGLISH 150a. LITERATURE OF WESTERN CIVILIZATION.

Not offered, 1970-71.

See description under English.

## ENGLISH 245b. SEMINAR: MODERN CONTINENTAL FICTION.

See description under English.

## GERMAN 197b. THE FAUST THEME IN LITERATURE.

See description under German.

Mr. Arndt.

## GERMAN 199. THE GERMAN CONTRIBUTION TO WORLD LITERATURE.

Not offered, 1970-71.

See description under German.

Mr. Arndt.



# Computer Science

The courses in the area of Computer Science listed below are available to Clark students. They involve the use of the 1620 on campus and the RCA 70/46 currently housed on the Worcester Tech campus. For other Computer Science courses see the Worcester Tech catalog.

## COMP. 100a. COMPUTER APPRECIATION.

The topics of computer software, hardware and applications are covered. Included will be a treatment of computer information systems, computer graphics and computer model building techniques. The course is designed to introduce the student to the capabilities and limitations of modern computing systems. This is not a programming course. Freshmen may enroll.

*Three semester hours.*

Mr. Howard.

## COMP. 101b. FORTRAN IV AND BASIC PROGRAMMING.

The fundamentals of FORTRAN IV and BASIC are presented. The course is designed for students with no mathematics beyond high school algebra.

*Three semester hours.*

Mr. Howard.

## COMP. 130a. INTRODUCTION TO COMPUTING.

This first course in computing concentrates on the solution of computational problems through the use of an algorithmic language. FORTRAN is primarily used in order to develop the ability to attack substantial problems. Designed for students majoring in Mathematics or the Physical Sciences.

*Three semester hours.*

Mr. Chan.

## COMP. 150b. COMPUTER SIMULATION TECHNIQUES.

Simulation and model building techniques will be stressed. Random number generators, plus tests of model validity will be introduced. Programming experience is required.

*Three semester hours.*

Mr. Howard.

## COMP. 175b. COMPUTER GRAPHICS.

The use of line printers, video units, cathode ray tubes and digital plotters as devices to display information will be introduced. Students will be assigned individual projects. Programming experience is recommended.

*Three semester hours.*

Mr. McCleary, Mr. Howard.

## COMP. 201b. ADVANCED COMPUTER PROGRAMMING.

The course is designed for students with previous programming experience. Advanced programming techniques will be introduced. These will include: string manipulations, subroutines, and use of external storage devices.

*Three semester hours.*

Staff.

## COMP. 235a. COMPUTATIONAL LINGUISTICS I.

Introduction to formal language theory and syntactic analysis. Concept of algorithms and computability. Turing machines, context-sensitive, context-free, and finite-state grammars and their relations to automata. Properties of programming language analysis.

*Three semester hours.*

Mr. Chan.

**COMP. 235b. COMPUTATIONAL LINGUISTICS II.**

Processing of natural language data using computers. Formal models and techniques of linguistic analysis, statistical techniques. Concordances, indexing, dictionaries, grammars, parsing strategies. Selected topics in information organization and retrieval. Programming experience recommended.

*Three semester hours.*

Mr. Chan.

**GEO 248b. MODEL BUILDING TECHNIQUES.**

The systems analysis approach to problem formulation and linear programming techniques are presented. Individual projects are required.

*Three semester hours.*

Mr. Howard.

**GEO 249a. FORTRAN IV PROGRAMMING FOR GEOGRAPHY.**

Designed for students with no mathematics beyond high school algebra. Emphasis on numeric applications.

*Four semester hours.*

Mr. Howard.

**MATH 212a. NUMERICAL ANALYSIS.**

Calculus of finite differences, introduction to the theory of interpolation, error analysis, direct and iterative methods for solving equations and systems of equations. Prerequisite: Mathematics 13.

*Four semester hours.*

Mr. Stubbe.

## Economics

**DEPARTMENT FACULTY**

Roger C. Van Tassel, Ph.D., *Professor of Economics,*  
*Department Chairman*

James A. Maxwell, Ph.D., *Professor of Economics, Emeritus*

Howard W. Nicholson, Ph.D., *Professor of Economics\**

David Ott, Ph.D., *Professor of Economics*

George E. Hargest, M.B.A., *Associate Professor of Economics\*\**

Constantine N. Michalopoulos, Ph.D., *Associate Professor of Economics*

Harold T. Moody, Ph.D., *Associate Professor of Economics and*  
*Business Administration*

Attiat Ott, Ph.D., *Associate Professor of Economics*

Frank W. Puffer, Ph.D., *Associate Professor of Economics*

Peter Sloane, Ph.D., *Associate Professor of Economics and Education*

Herrington J. Bryce, Ph.D., *Assistant Professor of Economics\*\**

Alan F. Gummerson, M.A., *Assistant Professor of Economics*

Donald E. Wise, M.A., *Assistant Professor of Economics and*  
*Business Administration*

Albert J. Sargent, M.A., *Instructor in Business Administration*

\*On leave, second semester 1970-71.

\*\*On leave 1970-71.

### UNDERGRADUATE PROGRAM

The undergraduate program is designed to give the student a comprehensive grasp of the underlying principles and functions of economic institutions, and to develop habits of systematic thought. Economics 11 is a prerequisite to all other courses in Economics. Majors in Economics are required to take Economics 205a, Intermediate Economic Theory, and Economics 205b, National Income Analysis and are strongly advised to take Economics 160, Introduction to Statistical Method. Students planning on graduate study in Economics are advised to elect courses in Economic Theory, Statistics and Econometrics, and Mathematics. Some courses in Economics and Business offered in the Evening College may be counted toward the major with the approval of the department chairman.

In addition, at least 36 semester hours of a major's program must be selected from other than the following fields or courses: geography, history, government, international relations, sociology, mathematics 11 and 12, and psychology 11 and 170b.

Candidates for departmental honors may engage in a program of independent study off-campus during one semester of the junior year. These students may work for business firms or government agencies in applied economic research and receive academic credit.

In making elections, students should bear in mind that some advanced courses may be offered only in alternative years.

### GRADUATE PROGRAM

The University offers facilities for graduate study and research leading to the Master of Arts degree and Doctor of Philosophy degree in Economics for a small number of selected students.

Graduate students may elect to take a limited amount of work in related courses offered by other departments.

Scholarships and fellowships are available for a limited number of well-prepared students. These appointments exempt their holders from tuition fees and some carry stipends in varying amounts. Several teaching assistantships are also awarded which enable graduate students to gain experience in undergraduate instruction. These carry remission of tuition and a cash payment, up to \$2,600 for part-time work (one-half).

### MASTER OF ARTS PROGRAM

Students interested primarily in an M.A. Degree as a terminal degree are normally not admitted to graduate study. The M.A. may be awarded to graduate students who have completed the appropriate course and residence requirements. Students may be awarded the M.A. Degree upon satisfactory completion of the Ph.D. oral examination; or, in the case of students who do not continue toward the Ph.D., upon satisfactory completion of an approved program of 24 semester hours of course work, the writing of an M.A. Thesis and an oral examination.

A student should discuss his plans with the department chairman on or before Registration Day and secure approval of his course program. Each M.A. candidate is required to pass a course in Graduate Economic Theory.



## DOCTOR OF PHILOSOPHY PROGRAM

The department offers two related Ph.D. programs: (1) the traditional program and (2) the TTT program. The TTT program is designed to train graduate students in the discipline of economics and in the process of education. All the requirements of the traditional program must be met except that one of the special fields offered for oral examination and the dissertation are expected to be in the area of economic education. Also TTT fellows are expected to participate as fully as possible in interdisciplinary and in summer programs specifically related to the objectives of this three year program. The traditional program is described below.

Two full academic years of graduate work, or its equivalent in part-time work, is necessary for admission to Ph.D. candidacy. One of these years must be spent in residence at Clark University. In residence is broadly defined as work done at Clark University under the immediate personal supervision of at least one member of the University faculty. For the degree of Doctor of Philosophy, twenty-four semester hours is a normal full-time program.

All candidates for the Ph.D. in Economics are required to demonstrate proficiency in Methods of Quantitative Research in Economics, i.e. by passing designated courses offered in the Department or, in the case of prior preparation, by passing a test given by the Department. Also, students are required to demonstrate proficiency in one of the following: (a) Proficiency in a foreign language closely related to the student's professional interest as an Economist; (b) proficiency in Mathematics for economists.

Each student in the Ph.D. program is required to demonstrate proficiency in Economic Theory. The Economic Theory requirement includes Micro-theory, Macro-theory and the History of Doctrine. Some use of mathematics may be required in the examination in Economic Theory. The student satisfies the Economic Theory requirement by passing a six-hour written examination. This examination is taken, normally, during the third full semester of graduate study.

Upon completion of the Economic Theory requirement, the student is examined in three special fields at a two hour preliminary oral examination given usually within a semester after completion of the Economic Theory requirement. These fields may be selected from among the following: Money and Banking, Public Finance, Industrial Organization, International Trade, Labor, Economic Growth, Regional Economics, Econometrics, or one field selected from related subjects. If Econometrics is selected as a special field, the level of performance required is substantially higher than the general requirement in Econometrics for all Ph.D. candidates. Within a month after having passed the oral exam, each student is expected to make a presentation of his proposed dissertation topic before an informal conference with his dissertation committee. The final examination of two hours, or less, will be devoted exclusively to an oral defense of the dissertation.

The dissertation must be a real contribution to knowledge, based upon independent research, convincingly presented, and acceptably written.

Some teaching experience at Clark or such other teaching as the Department may regard as equivalent, is prerequisite to the Doctor's degree.

## COURSES

### F11. PRINCIPLES OF ECONOMICS.

Open to freshmen. One semester course offered both semesters.

*Four semester hours each semester.*

Mr. Van Tassel.

**12b. CONTEMPORARY ECONOMICS.**

This course permits the non-economics major to develop a working knowledge of current economic problems. Readings which require very limited technical skill or knowledge are assigned. Students are expected to participate actively in discussions. Prerequisite: Economics 11.

*Four semester hours.*

Mr. Ott

**123. SPECIAL PROJECTS.**

Consideration of the causes of poverty and the strategies designed to alleviate it. Public expenditure programs in the general areas of welfare, housing, education and employment will be analyzed and evaluated.

*Four semester hours.*

Mr. Sloane.

**13a. MONEY AND BANKING.**

*Four semester hours.*

Mr. Ott.

**141b. ANALYSIS OF FINANCIAL STATEMENTS.**

Not offered, 1970-71.

The course is designed for those who may not have studied accounting, but wish to learn something of the methods of the analysis, interpretation and use of financial statements.

*Four semester hours.*

**142b. ECONOMICS OF UNDERDEVELOPED REGIONS.**

An analysis of underdeveloped nations. Economic, cultural, social, and political factors that have an importance in economic development. Prerequisite: Economics 11.

*Four semester hours.*

Mr. Gummerson.

**15a. PUBLIC FINANCE.**

The principles of governmental expenditures, revenues, and debts, with particular reference to the United States.

*Four semester hours.*

Mrs. Ott.

**150a. ECONOMIC HISTORY OF THE UNITED STATES.**

An analysis of the development of the American economy. Prerequisite: Economics 11.

*Four semester hours.*

Mr. Gummerson.

**160a. INTRODUCTION TO STATISTICAL ANALYSIS.**

The theory and application of frequency distributions; measures of central tendency; dispersion; skewness and kurtosis. An introduction to probability theory; estimation by confidence interval; acceptance sampling; quality control; analysis of variance; and other statistical tests of significance complete consideration of univariate distribution. Prerequisite: Mathematics 11 or equivalent.

*Four semester hours.*

Mr. Sargent.

**160b. INTRODUCTION TO STATISTICAL ANALYSIS.**

Problems are integrated with a systematic presentation of principles and methods. Topics include price and quantity indexes; seasonal trend and cycle analysis; linear and curvilinear regression and consideration of the stochastic (Ut) term. Finally, tests of statistical significance on the parameters of the regression equation are made. Prerequisite: Economics 160a.

*Four semester hours.*

Mr. Sargent.

**175a. THE SOVIET ECONOMY.**

Introduction to Marxist economics; the historical evolution and present structure of the Soviet Economy; the operation and problems of a centrally planned economy; current reforms and future trends.

*Four semester hours.*

Mr. Michalopoulos.

**199a. SPECIAL PROJECTS.**

In the first semester the topic will be a thorough analysis of the Political Economy of Worcester.

*Four semester hours.*

Mr. Gummerson.

**200b. THEORIES OF ECONOMIC GROWTH.**

A systematic survey of the growth theories for both advanced and underdeveloped economies, the measurement of economic growth and change. Prerequisite: Economics 205 or consent of instructor.

*Four semester hours.*

Mr. Michalopoulos.

**204. ECONOMIC EDUCATION.**

Designed to analyze and evaluate the content, structure and tools of social science curricula at the elementary and secondary levels. Emphasis will be upon innovative, interdisciplinary programs incorporating economic concepts. The objective will be to design experimental projects for testing under classroom conditions.

*Four semester hours.*

Mr. Sloane.

**205a. INTERMEDIATE ECONOMIC THEORY.**

An analysis of contemporary price theory.

*Four semester hours.*

Mr. Wise.

**205b. NATIONAL INCOME ANALYSIS.**

A study of contemporary income theory.

*Four semester hours.*

Mr. Ott.

**207a. INTERNATIONAL ECONOMICS.**

Development of International Trade Theory, adjustment mechanisms and evaluation of major issues in international economic policy.

*Three semester hours.*

Mr. Van Tassel.

**207b. INTERNATIONAL ECONOMIC POLICY.**

Not offered, 1970-71.

A review of the rise of the world trading economy, techniques of commercial policy, and major questions of international economic policy. Prerequisite: Economics 207a.

*Four semester hours.*

**22a. LABOR AND MANPOWER.**

Not offered, 1970-71.

A survey of the nature of labor economics and labor problems, including the several approaches of organized workers and employers to these problems.

*Four semester hours.*

**235b. MACRO POLICY.**

An analysis of contemporary problems of economic stabilization. Both monetary and fiscal policies will be involved.

*Four semester hours.*

Mrs. Ott.



**24a. HISTORY OF ECONOMIC DOCTRINE.**

Beginning with a brief survey of ancient writers, medieval schoolmen and mercantilist authors, this course focuses on the evolution of economic analysis from the time of classical writers to the 1960's and stresses developments in methods by which man has attempted to better understand economic phenomena.

*Three semesters hours.*

Mr. Nicholson.

**26a. INDUSTRIAL ORGANIZATION AND GOVERNMENT CONTROL.**

Examination of the various forms of governmental regulation applied to our present industrial organization. Appraisal of existing governmental controls in specific industrial situations.

*Three semester hours.*

Mr. Nicholson.

**26b. PROBLEMS IN INDUSTRIAL ORGANIZATION.**

Not offered, 1970-71.

Problems of market organization, behavior, and public policy. Conducted on a seminar basis.

*Four semester hours.*

**265a. INTRODUCTION TO ECONOMETRICS.**

An introduction to the problems and techniques arising in the application of statistics to economic data. Prerequisite: Economics 160a.

*Four semester hours.*

Mr. Puffer.

**265b. ECONOMETRIC APPLICATIONS.**

Application of econometric techniques to economic research problems. Analysis of econometric applications in the professional literature. Prerequisite: consent of instructor.

*Four semester hours.*

Mr. Puffer.

**271. INTRODUCTION TO MATHEMATICAL ECONOMICS.**

An introductory survey of the use of mathematical methods in economic analysis. Special attention is given to the mathematical framework of the theory of price determination. Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Nicholson.

**272b. MATHEMATICAL ECONOMICS.**

Not offered, 1970-71.

Mathematical approach to Microeconomic Theory including general equilibrium. Intended for advanced undergraduate students with some knowledge of calculus and linear algebra. This course may be taken in lieu of Economics 205a. Prerequisite: consent of instructor.

*Four semester hours.*

Mr. Moody.

**277a. REGIONAL ECONOMICS.**

Theoretical and practical aspects of economic development, cyclical changes and trade between regions of the United States. Location theory, growth trends, wage and income differentials, structural unemployment and inequalities in income distribution are considered. Interregional input-output tables emphasized. Prerequisite: Economics 11, or one advanced economics course.

*Four semester hours.*

Mr. Moody.

**277b. PROBLEMS IN REGIONAL ECONOMICS.**

Not offered, 1970-71.

The application of regional economic theory to problems in regions in the United States. Prerequisite: Economics 277a.

*Four semester hours.*

**278b. NATIONAL AND REGIONAL PLANNING.**

Theory, method and experience of planning. Development planning is examined at both the national and regional levels with emphasis placed on the problems of harmonizing regional with national objectives. Prerequisite: 277a.

*Four semester hours.*

Mr. Michalopoulos.

**280. JUNIOR HONORS.**

Designed to assist honors candidates in integration of the field. Prerequisite for honors.

Staff.

**281. SENIOR HONORS.**

*Four semester hours each semester.*

Staff.

**282. HONORS.**

Eligible students selected by the department may work off campus for a summer and a semester as junior professional Economists in business, government, or industry and receive full academic credit for a semester's work.

Staff.

**301a. ECONOMIC THEORY, MICRO-ECONOMICS.**

Theory of consumer behavior, theory of production and costs, elements of linear programming, theory of market relationships. Prerequisite: consent of instructor.

*Four semester hours.*

Mrs. Ott.

**301b. ECONOMIC THEORY, MICRO-ECONOMIC PROBLEMS.**

Pricing of factors, theory of income distribution — profits, rents, interest, welfare economics; general equilibrium theory, input-output analysis, principles of micro-economic dynamics. Prerequisite: consent of instructor.

*Four semester hours.*

Mr. Wise.

**302a. ECONOMIC THEORY — MACRO.**

Income and employment theory. A study of the variables of macroeconomics. The pre-Keynesian and Keynesian aggregative systems. Prerequisite: consent of instructor.

*Four semester hours.*

Mr. Puffer.

**302b. ECONOMIC THEORY — MACRO ECONOMIC PROBLEMS.**

Mathematical and econometric models of the economic system, business cycles and forecasting and macroeconomic public policy. Prerequisite: consent of instructor.

*Four semester hours.*

Mr. Ott.

**313b. MONEY AND BANKING SEMINAR.**

The process of money creation and money flows; an analysis of the monetary and banking system, money and capital markets, and the role of financial intermediaries; analysis of monetary policy instruments and their effectiveness; competing objectives of monetary policy; relation of these objectives to fiscal policy, debt management, and economic growth. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Ott.

**325b. PUBLIC FINANCE SEMINAR.**

A study of the theory of public finance, fiscal policy, institutional arrangements, and policy problems. Prerequisite: consent of instructor.

*Four semester hours.*

Mrs. Ott

327a. INTERNATIONAL TRADE THEORY.

The theory of international trade and finance. Problems in international economics with particular attention on international finance. Prerequisite: consent of instructor.

Four semester hours. . . Mr. Gummerson.

328. ECONOMIC DEVELOPMENT.

Growth and development seminar. Mr. Michalopoulos.

390a. THEORY OF ECONOMETRICS.

The application of statistical techniques to the verification of economic postulates and problems. Topics considered are: the linear normal regression model, single equation econometric problems, simultaneous equation estimating techniques, spectral analysis and factor analysis. Prerequisite: consent of instructor.

Four semester hours. . . Mr. Puffer.

|              |   |                                         |                 |
|--------------|---|-----------------------------------------|-----------------|
| 300. READING | } | IN ECONOMIC GROWTH.                     | Staff.          |
| 30. THESIS   |   |                                         |                 |
| 31. THESIS:  |   | IN MONEY AND BANKING.                   | Mr. Ott.        |
| 322. READING | } | IN LABOR.                               | Staff.          |
| 32. THESIS   |   |                                         |                 |
| 34. THESIS:  |   | IN PUBLIC FINANCE AND FISCAL POLICY.    | Mrs. Ott.       |
| 326. READING | } | IN BUSINESS ORGANIZATION AND GOVERNMENT | Mr. Nicholson.  |
| 35. THESIS   |   |                                         |                 |
| 36. THESIS:  |   | IN INTERNATIONAL ECONOMICS.             | Mr. Van Tassel. |
| 329. READING | } | IN STATISTICAL METHODS.                 | Mr. Nicholson.  |
| 37. THESIS   |   |                                         |                 |
| 334. READING | } | IN HISTORY OF ECONOMIC THOUGHT.         | Mr. Nicholson.  |
| 38. THESIS   |   |                                         |                 |
| 339. READING | } | IN ECONOMIC THEORY.                     | Staff.          |
| 320. THESIS  |   |                                         |                 |

Education

DEPARTMENT FACULTY  
William C. Kvaraceus, Ed.D., *Professor of Education and Sociology,*  
*Department Chairman*  
Helen J. Kenney, Ed.D., *Associate Professor of Education*  
Peter E. Sloane, Ph.D., *Associate Professor of Economics and Education*  
Marcia A. Savage, Ed.D., *Assistant Professor of Education*  
Irving A. Schwartz, M.A., *Assistant Professor of Education and Clinical*  
*Instructor in Social Studies*



William E. Topkin, Ed.D., *Assistant Professor of Education*  
 Spencer R. Potter, Ed.D., *Lecturer in Education*  
 Eleanor R. Moosey, Ed.D., *Lecturer in Education (Part-Time)*  
 Mitchell P. Lichtenberg, M.A.T., *Director, Training Complex Project*  
*With the cooperation of* Professor Reid of the Department of Romance Languages, Professor Warman of the Department of Geography, Professor Beck of the Department of Philosophy, Visiting Lecturers, and the following Clinical Instructors: Stephen H. Baker, Ed.M.; David H. Quist, Ed.M.; Claryce L. Evans, M.S.; Ann Goldsmith, Ed.M.; Phylis Morrison and Alexander J. Radzik, Ed.M.

### UNDERGRADUATE PROGRAM

The department encourages all students who may be interested in preparing for careers in education to consult with some member of its staff early in their careers at the University. The actual election of courses in education, however, should be postponed until the junior year. During the first two years, students should complete as many of the specific requirements for the degree of Bachelor of Arts as possible, and lay a broad foundation of scholarship in the subjects in which they wish to specialize.

In conformity with its policy of emphasizing the importance of scholarly background, the department offers its courses as electives, and not as undergraduate majors.

However, to enable those students contemplating teaching careers the Department provides an internship in the senior year as a transition to professional study at the graduate level, and for entry into beginning teaching positions. The internship module is limited to seniors who have completed major requirements at a satisfactory level of scholarship. Most interns carry the module for a 12 to 15 credit block during either the first or second semester. Decision to elect the internship module must be made before the end of the junior year, and must be approved by the Department of Education and reviewed by academic departments for competency in subject matter areas.

### GRADUATE PROGRAM

The department offers one program leading to the degree of Master of Arts in Education and another leading to the degree of Doctor of Education.

*Master of Arts in Education:* For graduate students wishing to prepare for teaching and/or guidance in public or private secondary or elementary schools, the department offers a fifth-year program leading to the degree of Master of Arts in Education.

*Admission Requirements:* In addition to the general admission requirements to the Graduate School, a personal interview is usually required by the Department of Education.

*Programs Available:* Three programs leading to the degree of Master of Arts in Education are available:

1. A full or part time program in teacher preparation for students with a bachelor's degree and strong academic background. Superior students may complete this program in one year. It includes advanced work in the academic fields and internship experiences.
2. A study-teach program in cooperation with the Department of Romance Languages, involving instruction in beginning college courses leading to a Master of Arts in Teaching. This is a two-year program in which the student typically receives a Teaching Assistant Scholarship involving remission of tuition and a cash stipend; the intern devotes half-time to supervised teaching and other service to the Department of Romance Languages. In light of the extensive internship teaching experi-

ence, the number of courses in education may be reduced to equal that in the subject matter field. The assisting or teaching is a part of the requirements of all students in T.A.S. Program. As part of the study of Romance languages and literature, the departments look with favor on study abroad for at least one summer, but this is not a requirement.

3. A transitional program in educational psychology and educational sociology leading to doctoral work in these fields.

*Program Requirements:*

1. *Courses:* For further details on course requirements, consult the Department of Education.
2. *Internships:* The department provides opportunities for an extended internship experience under supervision for all graduate students. For graduate students who have not had teaching experience, satisfactory work in internship teaching is a requirement for the degree of Master of Arts in Education.
3. *Thesis or Additional Study in Lieu of Thesis:* All candidates for the degree of Master of Arts in Education must choose one of the following plans:
  - (a) Prepare an acceptable thesis.
  - (b) Elect, in lieu of thesis, two additional semester courses.
  - (c) Elect, in lieu of thesis, a seminar in which intensive work will be required in preparing and presenting reports before fellow graduate students and a member of the staff.
4. *Final oral examination:* The passing of a final oral examination will be required of all candidates.

*Doctor of Education:* A new program for the degree of Doctor of Education has been established with two emphases: (1) on human development and learning as it relates to curriculum, instruction, and evaluation; and (2) on the sociology of education. The new Doctorate aims to prepare two kinds of specialists, one who would function as an educational analyst and one as a social analyst. Applicants for admission to the program will be expected to give evidence of high scholarly achievement and leadership promise in their chosen field. Other evidence of potential such as results from Graduate Record Examinations, Miller Analogies, etc. may be required. Personal interviews with staff of the Department are required before applications are acted upon. In special cases, foreign students may be excused from the Examination and interview requirement.

The department admits to graduate work only those students who plan to enroll in the Ed.D. program on a full-time basis. A residence requirement demands a minimum of full-time study (not less than 24 semester hours credit beyond the master's degree). The student is required to pass his course work with distinction. The number of courses to be taken is determined through individual assessment but generally calls for four or five semesters of full-time study beyond the master's program. Language requirements in the Department are optional and relate to the student's background and future professional goals. Competency in the field of education as a whole and in areas of specialization is determined by written and oral examinations. The student is also required to demonstrate his ability to conduct independent research through the planning and execution of an acceptable dissertation. The dissertation is usually started during the second year of study and completed in the third or fourth year. The length of the program, however, will vary according to the student's individual needs and abilities. A final oral examination centered around the dissertation and course work in the general field of education and in the areas of concentration must be passed to complete the degree requirements.

**COURSES****200. GEOGRAPHY IN EDUCATION.**

Refer to description under Geography 200a and b.

*Three semester hours each semester.*

Mr. Warman.

**201a. EDUCATIONAL PSYCHOLOGY: CHILD GROWTH AND DEVELOPMENT.**

Principles of child development with emphasis upon maturation, learning and personality development in the elementary school years. Recommended for those planning to take Internship Module.

*Three semester hours.*

Section 1, Miss Savage; Section 2, to be announced.

**201b. EDUCATIONAL PSYCHOLOGY: ADOLESCENT GROWTH AND DEVELOPMENT.**

Principles of adolescent development with special emphasis upon learning and personality development in the secondary school years. Recommended for those planning to take Internship Module.

*Three semester hours.*

Section 1, Miss Savage; Section 2, to be announced.

**204a.b. ECONOMIC EDUCATION.**

Designed to analyze and evaluate the content, structure and tools of social science curricula at the elementary and secondary levels. Emphasis will be upon innovative, interdisciplinary programs incorporating economic concepts. The objective will be to design experimental projects for testing under classroom conditions.

*Three semester hours each semester.*

Mr. Sloane.

**217a.b. INTERNSHIP TEACHING.**

An intensive period of observation and teaching in the field or fields in which the student plans to teach. Individual supervision is given by the department and by teachers in co-operating schools. Admission on consent of the Department. Limited to graduate students in M.A. in Ed. Program.

*Six semester hours.*

Staff and Co-operating Teachers.

**221. INTERNSHIP TEACHING IN MUSIC.**

Consent of Music Department required.

*Staff and Co-operating Teacher.*

**233a.b. SOCIAL STUDIES: CURRICULUM MATERIALS & METHODS.**

*Three semester hours.*

Mr. Lichtenberg.

**270. (ROMANCE LANGUAGES 270) THE TEACHING OF ROMANCE LANGUAGES.**

A practicum course for Teaching Assistant Scholars serving as first-year Interns in the Department of Romance Languages. This course will include a weekly lecture and readings to provide a basis in the theory of applied linguistics; directed teaching in language courses; and a semi-monthly seminar for discussion of the relations between theory and practice.

*Three semester hours each semester.*

Mr. Reid and Staff.



**271. (ROMANCE LANGUAGES 271) THE TEACHING OF ROMANCE LANGUAGES — ADVANCED.**

A continuation of course 270 for second-year Interns.

*Three semester hours each semester.*

Mr. Reid and Staff.

**280b. JUVENILE DELINQUENCY AND THE SCHOOL.**

Considers the role of the school as a central agency in the prevention and control of norm-violating behavior.

*Three semester hours.*

Mr. Kvaraceus.

**287b. INTERNSHIP MODULE IN EDUCATION.**

The internship provides an intensive work-study experience in elementary schools and other educational agencies in the Worcester area. It involves theoretical course work; a full-time supervised work experience in schools or in some other educational, welfare, and recreation agency; and related workshops, seminars, and conferences.

The module provides credit in the following areas: student teaching (6 credits) with the remainder of the 12 to 15 credits distributed according to individual student needs among units covering curriculum development, methods and materials of instruction, and tests and measurement.

The internship offers a wide variety of specialized learning opportunities to meet the different interests and backgrounds of the students. These include experiences in educational testing and diagnosis, educational research, curriculum construction and experimentation and school administration as well as in classroom teaching and individual tutoring.

Limited to seniors who will have completed major requirements and whose grade point average reflects high level of scholarship.

*Twelve to fifteen semester hours.*

Staff and Co-operating Teachers.

**290b. PHILOSOPHY OF EDUCATION.**

The aims, processes and materials of education with special reference to the influence of philosophical ideas on educational problems.

*Three semester hours.*

Mr. Beck.

**295a.b. THE TEACHER AND TEACHING.**

A curriculum for teachers which ranges from essential knowledge (the problem of the concept of man and nature) to existential knowledge (the "who am I" problem) and the relationship of these to interpersonal relations, group processes, curriculum development, and personal growth.

*Three semester hours each semester.*

Mr. Schwartz.

**304a. SEMINAR: GEOGRAPHY AND ITS TEACHING.**

The seminar will have three major themes. One will deal with the philosophical background and the growth of geography *per se*. The second theme will have to do with techniques. The third theme will be the relationship of geography to other subjects. Discussion leaders and topics will be assigned according to the specific interests of those in the seminar.

*Three semester hours.*

Mr. Warman.

**305b. GROUP PROCESSES IN EDUCATION.**

A study of group phenomena with emphasis upon the small group in teaching and counseling.

*Three semester hours.*

To be announced.

**311a. PRINCIPLES AND PRACTICES OF GUIDANCE.**

Consideration will be given to the rationale for pupil personnel services in the public schools and to the organization and means by which the services may be organized and offered to the student body.

*Three semester hours.*

Mr. Potter.

**312a. COUNSELING.**

Emphasis will be upon the theory and methodology of counseling and upon the management of typical counseling problems. The diagnosis and referral of behavior disorders and related personality maladjustments will be considered. Case material will be presented and analyzed. (311a must be taken simultaneously or have been taken previously.)

*Three semester hours.*

Mr. Topkin.

**312b. VOCATIONAL THEORY, OCCUPATIONAL INFORMATION AND PLACEMENT.**

This course deals with three areas: (1) a review of vocational theory; (2) the use of informational services relevant to educational and vocational counseling; (3) placement.

*Three semester hours.*

Mr. Potter.

**313a. THE ROLE OF EVALUATION IN EDUCATION.**

A comprehensive review of research and trends on the role of evaluation in the educative process. A major emphasis will be placed on the development and utilization of strategies to assess the effectiveness of educational innovations. This course is planned as a part of the graduate sequence in the program preparing educational analysts.

*Three semester hours.*

Miss Kenney.

**314a. TESTS AND EVALUATION: THEORY AND TECHNIQUES OF MEASUREMENT AND APPRAISAL.**

The methods and problems involved in the evaluation of abilities, interests, and achievement of children and youth, both by standardized instruments and by special purpose measures.

*Three semester hours.*

To be announced.

**314b. TESTS AND EVALUATION: ADVANCED TECHNIQUES.**

The measurement and evaluation of aptitudes, attitudes, and personality with special attention to the diagnosis of learning difficulties.

*Three semester hours.*

To be announced.

**317a. INDIVIDUAL ASSESSMENT OF MENTAL ABILITIES.**

Theory and intensive experience in administering and interpreting individual tests of intelligence with major emphasis on Stanford-Binet Revision and Wechsler-Bellevue Intelligence Scales. Emphasizes educational approach to interpretation.

*Three semester hours.*

Miss Moosey.

**319a.b. RESEARCH DESIGN AND STATISTICAL METHODS I AND II.**

Theory and application of principles of research methods and techniques with special reference to the selection and planning of an original research project.

*Three semester hours each semester.*

Miss Kenney and Staff.

320a.b. SEMINAR IN THE SOCIOLOGY OF EDUCATION I, II.

Examines school as a social system with reference to problem of planning, initiating, and sustaining the school as a viable social agency. Considers theoretical and practical aspects of the educator as a change agent.

*Three semester hours each semester.*

To be announced.

322a.b. PRACTICUM IN GUIDANCE.

By special arrangement with the Department.

*Three semester hours.*

Staff.

326. ADVANCED PRACTICUM IN GUIDANCE AND COUNSELING.

By special arrangement with the Department.

*Three semester hours each semester.*

Mr. Topkin and Staff.

330b. APPLYING RESEARCH IN INSTRUCTION AND CURRICULUM DEVELOPMENT.

Will provide a systematic review and appraisal of significant research on elementary and secondary curriculum materials and methods of teaching. Will also involve the development and try-out of curriculum units for classroom use based on differing rationales. This course is planned as a part of the graduate sequence in the program preparing educational analysts.

*Three semester hours.*

Miss Kenney.

331a.b. APPLICATION OF RESEARCH METHODS TO EDUCATIONAL SOCIOLOGY.

*Three semester hours.*

To be announced.

332. SOCIOLOGY OF LEARNING AND TEACHING.

*Three semester hours.*

To be announced.

333. EDUCATIONAL INSTITUTIONS AND SOCIAL CHANGE.

*Three semester hours.*

To be announced.

334. EDUCATION AS A FORCE IN URBAN SOCIETY.

*Three semester hours.*

To be announced.

335a.b. HUMAN LEARNING: THEORY AND PRACTICE.

Reviews current theories and relates them to individual and group instruction in the classroom with particular reference to problems of individual differences faced by the classroom teacher.

*Three semester hours each semester.*

To be announced.

336. LEGAL AND ADMINISTRATIVE ASPECTS OF EDUCATION.

Considers education and government, education and the law, and the theory of organization and administration of education.

*Three semester hours.*

To be announced.

346a. THE SOCIOLOGY OF THE SCHOOL.

A study of social forces and their relations to the school as a stabilizing agent and as an agent of change.

*Three semester hours.*

Mr. Kvaraceus.

350. RESEARCH IN EDUCATION.

Individual direction of students in their research projects.

*Three semester hours each semester.*

Staff.

379a.b. ADVANCED GRADUATE INTERNSHIP IN EDUCATION.

*Three semester hours.*

Staff.



380b. DEPARTMENTAL SEMINAR ON CONTEMPORARY EDUCATIONAL PROBLEMS AND ISSUES.

*Three semester hours.*

Staff.

GRADUATE READINGS AND THESIS COURSES

38. } DIRECTED READINGS IN EDUCATIONAL PSYCHOLOGY.

381. } THESIS.

Staff.

37. } DIRECTED READINGS IN EDUCATIONAL SOCIOLOGY.

371. } THESIS.

Staff.

# English

## DEPARTMENT FACULTY

William H. Carter, Jr., Ph.D., *Professor of English, Department Chairman*

Karl O. E. Anderson, Ph.D., *Professor of English*

James F. Beard, Jr., Ph.D., *Professor of English*

Charles S. Blinderman, Ph.D., *Professor of English*

James Macris, Ph.D., *Professor of English and Linguistics*

Stanley Sultan, Ph.D., *Professor of English*

Jessie C. Cunningham, Ph.D., *Associate Professor of English*

Serena S. Hilsinger, Ph.D., *Associate Professor of English*

Neil R. Schroeder, Ph.D., *Associate Professor of English*

Donald Bacon, Ph.D., *Assistant Professor of English*

Alvin Hugh McLean, M.A., *Assistant Professor of English*

## UNDERGRADUATE PROGRAM

An undergraduate major in English and American Literature is expected to acquire a liberal education with a broad background in the arts and sciences. To do so, he should become familiar with several fields in the humanities, the social sciences, mathematics, and the sciences; and insofar as is possible, he should attempt to achieve depth in at least one area outside his major field. At each registration period, the student should discuss his program with his adviser.

The English major must take at least thirty hours in literature courses other than English 16, 17, 18, and 19. In addition, he must take a minimum of twenty hours of related courses in other fields, as specified under *Related Courses* below. No student is permitted to take *more* than eighty-four hours in his major and related fields.

*Literature Courses.* The minimum thirty hours of literature courses required of the major must include:

1. English 10a or b (a prerequisite for all other literature courses offered by the department), taken preferably in the freshman year and no later than the sophomore year.
2. English 13a or b, preferably taken no later than the sophomore year.
3. English 14, English 15, or English 111, normally taken before the senior year.

4. A minimum of twelve hours in courses or seminars at the 200 level. (English 250, 260, 261 may be taken in partial fulfillment of this requirement.)

To make sure that students develop some historical perspective and an awareness of the range and variety of English and American literature, all English majors must include in their programs at least:

- a. Three semester-courses dealing with literature written before 1700 (for example, English 15a, 112b, 114b, 201b, 202b, 204, and 213).
- b. Three semester-courses dealing with literature written from 1700 to 1900 (for example, English 14, 15b, 111, 205, 210, and 217).

Several English seminars also meet this requirement, depending on the subjects. Since the topics for seminars vary from year to year, the seminars fulfilling either half of this requirement cannot be listed here by name. As an alternative to taking the required number of courses specified under a and b, above, the student may demonstrate his competence in these periods by examination.

*Courses in Foreign Literature.* A student may count any of the courses listed under "Comparative Literature" towards the English major.

*Related Courses.* The minimum twenty hours of related courses required of the English major must include six or more hours of history and six or more hours of Philosophy and may include Linguistics 115, Theatre Arts 151, 152, 153.

As long as the student fulfills the requirements specified above, he is entitled to elect any combination of courses ranging from fifty to eighty-four semester hours in his major and related fields.

*Courses Recommended Outside the Major and Related Fields.* Like all undergraduates, the English major must elect at least thirty-six hours of courses *outside* his major and its related fields. These courses must be selected from the offerings of the following Departments: Biology, Chemistry, Economics, Education, Fine Arts, Geography, Geology, German, Government and International Relations, Mathematics, Music, Physics, Psychology, Romance Languages, Russian, Sociology, Theatre Arts (with the exception of 151, 152, 153).

Those students who intend to go on to graduate school should be aware that a reading knowledge of French, German, and Latin is frequently required of doctoral candidates.

*Honors Program.* Majors are encouraged to apply in the spring of their sophomore year to participate in the Honors Program in English. Further information is available from the Department.

*Cooperative Programs.* The range of course offerings open to majors is being extended by the establishment of a cooperative arrangement with the English Departments at Assumption College and the College of the Holy Cross. With the permission of the Department, majors may take a few carefully selected courses in literature and linguistics at these institutions. Another consortium program that may be of interest is listed under "Theatre Art."

## GRADUATE PROGRAM

The University offers a program leading to the Master of Arts degree in English. A limited number of scholarships providing tuition remission are available for superior students. The department also offers several teaching assistantships, involving half-time teaching and half-time study, with a stipend up to \$2600, plus the remission of tuition.

For the Master of Arts, the student must satisfactorily complete at least 30 semester hours of work, including English 300a (Introduction to Graduate Studies), English 250a (English Language), and at least one seminar. He must also write an acceptable master's thesis (which, with an associated reading course, English 31, may count up to 6 of the required 30 semester hours); he must pass a written Foreign Language Examination (in Greek, Latin, French, German, Italian, Russian, Spanish, or another foreign language approved by the Department); and he must pass a final oral examination.

## COURSES

### F10a and b. INTRODUCTION TO LITERATURE.

This course deals with the problems common to all the literary genres — such as the handling of diction, imagery, point of view, tone, and structure — but each section has its own set of readings focused on a particular concept or theme. Students will be permitted to make their own choices of section as far as possible. Offered both semesters.

*Three semester hours.*

Staff.

### 13a and b. INTRODUCTION TO POETRY.

A course introducing the student to a variety of critical approaches to poetry and affording extensive experience in reading, discussing and writing about individual poems. Attention is given to as many as possible of the chief kinds, functions and values of poetry. Offered both semesters.

*Three semester hours.*

Mr. Carter, Mrs. Hilsinger.

### 14. ENGLISH NOVEL.

A study of the English novel from its beginning to the end of the nineteenth century. The first semester includes Defoe, Richardson, Fielding, Smollett, Sterne, Jane Austen, and three or four minor novelists. The second semester considers Scott, Thackeray, Dickens, George Eliot, James, Hardy, Conrad, and two or three minor novelists. Some emphasis is placed on the development of the novel as a literary form.

*Three semester hours each semester.*

Mrs. Cunningham.

### 15. ENGLISH DRAMA.

A course in the major periods of English drama before the twentieth century. The first semester covers medieval religious drama and the drama of Tudor and Stuart England. The second semester covers British drama from 1660 to the earlier twentieth century.

*Three semester hours each semester.*

First semester, Mr. Schroeder; Second semester, Mr. Sultan.

### 16b. CREATIVE WRITING.

A course designed to cultivate and guide student work in the short story, the lyric poem, and the informal essay. Class meetings deal largely with important aspects of the art of fiction; published literary works and student manuscripts are discussed. Not open to freshmen. Prerequisite: a one-semester course in literature.

*Three semester hours.*

Mrs. Hilsinger.



**17b. CREATIVE WRITING: SECOND COURSE.**

Open to students who have taken English 16 and to other students interested in writing verse. Prerequisite the same as for English 16.

*Three semester hours.*

Mr. Sultan.

**F18a and b. EXPOSITORY WRITING.**

This course is designed to help students improve their expository writing through the study and application of rhetorical methods. Diction, sentence structure, paragraph integrity, theme organization, logic, semantics, persuasion, the relationship of idea to expression and of expression to audience are among the matters analyzed. Offered both semesters.

*Three semester hours.*

Staff.

**19b. INTERMEDIATE COMPOSITION.**

This course is designed to help those who have already acquired competence in expository writing to improve their style and effectiveness through practical experience. Special emphasis will be placed on stylistics, techniques of persuasion, and methods of organization through the study of works of established essayists and the close analysis of student papers. Enrollment limited to fifteen students. Prerequisite: English 18 and consent of the instructor.

*Three semester hours.*

Mr. Blinderman.

**88. DIRECTED READINGS.**

*Variable credit.*

Staff.

**110b. THE TRADITION OF AMERICAN DRAMA.**

Selected works from eighteenth and nineteenth-century drama with concentration on the development of twentieth-century American drama.

*Three semester hours.*

Mr. Bacon.

**111. AMERICAN LITERATURE.**

Through study of representative masterworks, the course traces the main currents of American literature from Puritan times to the present. Authors read during the first semester include Sewall, Edwards, Franklin, Cooper, Poe, Hawthorne, Thoreau, Emerson, Melville and Whitman; during the second semester, Twain, Howells, Dickinson, Adams, Crane, James, Frost, Eliot, Faulkner and Hemingway.

*Three semester hours each semester.*

Mr. Beard.

**112b. ELIZABETHAN NON-DRAMATIC LITERATURE.**

Not offered, 1970-71.

Elizabethan prose and poetry, excluding drama, will be considered in their cultural, intellectual, and literary context. Special attention will be devoted to the works of Sidney, Spenser, Shakespeare, Jonson and Donne; but many minor figures (Wyatt, Surrey, Nashe, Lyly, Greene, etc.) will also be considered. Offered at the discretion of the department.

*Three semester hours.*

**114b. THE LITERATURE OF ELIZABETHAN STREETS.**

Not offered, 1970-71.

A study of popular entertainment in Elizabethan England, including such forms as popular drama, Elizabethan fiction and romance, literature of roguery and crime, descriptions of social conditions, broadside ballads, and hack verse on topical events.

*Three semester hours.*

Mr. Schroeder.

**129. MODERN DRAMA.**

A survey, with special emphasis on several major figures, of drama from Ibsen to the present. The first semester traces the development of naturalism, the emergence of modern realistic drama and early reactions to realism. The second semester covers the period from World War II to the present and examines several of the major post-war movements, including Black theatre, and some of the non-dramatic forms which they have produced, including film.

*Three semester hours each semester.*

Mr. Schroeder.

**143b. MODERN BRITISH FICTION.**

The course deals primarily with the work of four twentieth century British writers of fiction: Joyce, Lawrence, Woolf and Durrell.

*Three semester hours.*

Mrs. Hilsinger.

**140b. AFRO-AMERICAN LITERATURE.**

Second semester only, 1970-71.

A study of selected Afro-American writers in prose and poetry. This course proposes to introduce the student to the vast body of writing by American Black authors, focusing on the evolution of their expression and its artistic merit. Offered second semester only in 1970-71.

*Three semester hours.*

Mr. McLean.

**144a. CONTEMPORARY AMERICAN FICTION.**

A critical introduction to the best American fiction since about 1900, with emphasis on its aesthetic values, sociological insights, and philosophical implications. Authors read include Dreiser, James, Anderson, Fitzgerald, Hemingway, Wolfe, Faulkner and Mailer.

*Three semester hours.*

Mr. Beard.

**150a. LITERATURE OF WESTERN CIVILIZATION.**

Not offered, 1970-71.

A study of literature basic to the cultural development of western civilization; selections range in subject from mythology to political science, in type from the epic poem to the essay, and in time from Greek antiquity to the Renaissance.

*Three semester hours.*

Mr. Blinderman.

**155b. JUNIOR HONORS SEMINAR**

Restricted to juniors who are candidates for honors in English. The purpose of the seminar is to prepare the student for the advanced independent study of literature. A variety of approaches will be used in a study of ten or eleven major literary works which will be selected by the students in conjunction with the professor.

*Four semester hours.*

Mrs. Cunningham.

**156. HONORS IN ENGLISH: SENIOR YEAR.**

*Four semester hours each semester.*

Staff.

**201b. SEMINAR: CHAUCER.**

An introduction to Middle English grammar, pronunciation, and scansion, and a study of *Troilus and Criseide* and the best of the *Canterbury Tales*, followed by a more rapid reading of at least three of Chaucer's earlier works, such as *The Book of the Duchess*, *The House of Fame*, *The Parliament of Fowls*, and *The Legend of Good Women*. Pre-requisite: Consent of the instructor.

*Four semester hours.*

Mr. Anderson.

**202b. MEDIEVAL LITERATURE.**

A study of the literature of Western Europe before 1500. The works read include epics such as *Beowulf*, *The Song of Roland*, *The Nibelungenlied*, and the *Njal's Saga*; historical writings and folk tales important in the development of the Arthur story; romances such as *Perceval*, *Tristan and Isolde*, and *Gawain and the Green Knight*; Dante's *Divine Comedy*; *Inferno*; selections from Chaucer's *Canterbury Tales*.

*Four semester hours.*

Mr. Anderson.

**204a. SEVENTEENTH CENTURY.**

**Not offered, 1970-71.**

A study of selected Metaphysical and Cavalier poets, masterpieces of seventeenth century prose, and the rise of English neo-classicism. Offered in alternate years.

*Four semester hours.*

Mr. Carter.

**204b. SEMINAR: MILTON.**

**Not offered, 1970-71.**

An intensive reading of Milton's poems and selected prose. Offered in alternate years. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Carter.

**205. EIGHTEENTH CENTURY.**

During the first semester, prose works such as Defoe's *Moll Flanders* and Swift's *Gulliver's Travels*, plays such as Gay's *Beggar's Opera* and Lillo's *London Merchant*, and the major poems of Pope and Swift are considered. During the second semester, prose works by Boswell and Johnson; novels by Richardson, Fielding, Smollet, Sterne; plays by Fielding, Goldsmith, Sheridan; and poetry by Thomson, Collins, Gray, Burns and Blake are studied. Offered in alternate years.

*Four semester hours each semester.*

Mr. Carter.

**206a. SEMINAR: SPECIAL STUDIES IN RENAISSANCE DRAMA. Not offered, 1970-71.**

A seminar devoted to the intensive study of a small group of dramatists or a special dramatic problem of the Renaissance. Prerequisite: consent of the instructor. Offered at the discretion of the Department.

*Four semester hours.*

Mr. Schroeder.

**207b. SEMINAR: THE CONCEPT OF TRAGEDY.**

Through the study of approximately twenty plays, three novels, and a number of poems, from the Greek and Hebrew origins of Western Culture to the present time, this course analyzes the nature of tragedy, the changes which this concept has undergone, the relation of these changes to shifting views of man and the universe, and the significance of the study of tragedy to us today. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Anderson.

**210. VICTORIAN LITERATURE.**

A study of Victorian values and major intellectual movements as expressed in literature. The first semester concentrates on the Idea of Duty (transcendental, utilitarian, Catholic, Darwinian, and Dickensian); the second on the Idea of Decadence (from the Pre-Raphaelites to Beardsley). Offered in alternate years.

*Four semester hours each semester.*

Mr. Blinderman.



**211a. ADAMS, HOWELLS, AND JAMES.**

The artist and American society. The course will concentrate on selected works of Adams, Howells, and James with some attention to works of Jewett, Chopin, Frederic, and Garland. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Bacon.

**212a. SEMINAR: AMERICAN LITERARY RENAISSANCE.**

This course will explore characteristic writings of Emerson, Thoreau, Hawthorne, Melville, and Whitman; consider their personal and literary interrelations; and seek to evaluate their artistic and cultural influences in the larger context of American society. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Beard.

**213. SHAKESPEARE.**

Approximately twenty plays, with supplementary critical essays, are read through the year as a basis for a study of Shakespeare's development as a dramatist and his changing attitude toward life. The second semester is devoted mainly to a careful analysis of *Hamlet*, *Othello*, *Lear*, *Macbeth* and *Anthony and Cleopatra*.

*Four semester hours each semester.*

Mr. Anderson.

**214a. SEMINAR: DARWINISM.**

This seminar, of an interdisciplinary nature, is devoted to the study of original and research materials elucidating the scientific, philosophical, religious and social dimensions of Darwinism. The course examines chiefly the survival of the fittest Darwinian ideas in English and American literature. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Blinderman.

**216b. SEMINAR: ROMANTIC AND VICTORIAN GOTHIC.**

The seminar will call forth the Gothic spirit from its incarnations in architecture, painting, and literature — graveyard poetry, Gothic novels, *Frankenstein*. Films and a field trip.

*Four semester hours.*

Mr. Blinderman.

**217. LITERATURE OF THE ROMANTIC PERIOD.**

Not offered, 1970-71.

To define Romanticism, the course will focus primarily on selected writings of English Romantic poets, but it will also study American and Continental works both of the Romantic period and of modern times. A collaborative effort will be made by instructor and students to correlate Romantic attitudes of the past, as expressed by such figures as Keats and Byron, with Romantic attitudes of the psychedelic present. Offered in alternate years.

*Four semester hours each semester.*

Mr. Blinderman.

**218b. SEMINAR: WILLIAM BLAKE.**

An analysis of the poems and of a selection of the Prophetic Books of Blake, including some consideration of Blake as graphic artist. Offered at the discretion of the department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Carter.

**220a. MODERNIST POETRY.**

A survey, with special attention to the genesis and development of modernism and to tendencies during the last few years toward a dominant new movement in English poetry. The works of almost fifty poets, ranging in time from Emily Dickinson to Robert Creeley, are considered. Offered in alternate years.

*Four semester hours.*

Mr. Sultan.

**222a. SEMINAR: FIVE TWENTIETH-CENTURY POETS.**

**Not offered, 1970-71.**

A seminar in the lyric poetry of Yeats, Eliot, Auden, Thomas, and a poet selected by the class, for students who have taken English 220a or the equivalent. Offered in alternate years. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Sultan.

**225b. SEMINAR: TWENTIETH CENTURY AMERICAN LITERATURE. Not offered, 1970-71.**

The course will include readings and discussions of a significant group of twentieth century American writers — O'Neill, Eliot, Robinson, Frost, Hemingway, Faulkner, and Stevens — as artists and as representatives of tendencies and influences in American civilization. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Beard.

**226a. SEMINAR: REALISM AND NATURALISM  
IN AMERICAN FICTION.**

**Not offered, 1970-71.**

A study of realism and naturalism in representative American fiction from about 1865 to about 1965, with attention to their esthetic, social, and philosophic implications. Writers considered include Twain, Howells, Frederic, James, Norris, Dreiser, Farrell, Steinbeck, and Mailer. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Beard.

**227b. SEMINAR: IBSEN.**

An intensive study of most of the plays and selected letters and speeches of Ibsen and of criticism of his life and work. Independent study and research is emphasized. Prerequisite: consent of instructor.

*Four semester hours.*

Mr. Schroeder.

**230a. SEMINAR: THE BRONTËS AND HARDY.**

A study of selected poetry and fiction of Charlotte, Emily and Anne Brontë and of Thomas Hardy: their dramatic affinities, their cosmic vision, their literary techniques. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mrs. Cunningham.

**231b. SEMINAR: THE IRISH LITERARY REVIVAL.**

**Not offered, 1970-71.**

A course in the inception, development and effect of the literary movement during the end of the last century and first decades of this one that created an Irish literature in English. Writers studied include Yeats, Joyce, Synge and O'Casey. The cultural, historical and political backgrounds of Anglo-Irish literature are also studied. Offered at the discretion of the department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Sultan.

**232b. SEMINAR: CONRAD, LAWRENCE AND JOYCE.**

This course deals with the development and accomplishment in the genres of the short story and the novel of three major writers of fiction of the twentieth century. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Sultan.

**235a. SEMINAR: BLOOMSBURY GROUP.**

This seminar will consider the aesthetic and social theories expressed in the novels of Virginia Woolf and E. M. Forster and in the essays of these and other members of the Bloomsbury Circle. Prerequisite: consent of the instructor.

*Four semester hours.*

Mrs. Hilsinger.

**245b. SEMINAR: MODERN CONTINENTAL FICTION.**

Masterpieces by modern European novelists (Flaubert, Turgenev, Tolstoy, Dostoyevsky, Gide, Proust, Mann, Kafka and Camus) are studied in translation, with special attention to their formal philosophical, moral, social, political, and psychological values. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Beard.

**250. HISTORY OF THE ENGLISH LANGUAGE.**

The first semester deals with the development of the phonology and lexicon of English, viewed as a dynamic series of systems. The course also describes the homeland, language, and culture of the Proto-Indo-Europeans as background for a treatment of the structural relationships between English and other languages of the Indo-European family. The second semester concentrates on the development of the grammar of English, also treated dynamically and systemically. The course includes an analysis of the establishment of Standard British English, the doctrine of correctness, and the growth of Modern American English in its sociocultural setting. Prerequisite: consent of the instructor. Only the first half of this course will be offered in 1970-71, but during the second semester.

*Four semester hours each semester.*

Mr. Macris.

**260b. SEMINAR: MODERN AMERICAN ENGLISH.**

This seminar analyzes the grammatical structure of Modern American English. It concentrates on an evaluational system for handling spoken and written English and the application of this system to problems of current English usage. The relevance of linguistic theory and methodology to the teaching of English receives special attention. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Macris.





261b. SEMINAR: LINGUISTIC APPROACHES TO LITERATURE. Not offered, 1970-71.  
A study of what modern linguistics has to offer in the analysis and criticism of literature, with special attention to the contributions of the generative-transformational, tagmemic, and parametric approaches. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Macris.

300a. INTRODUCTION TO GRADUATE STUDIES.

This course is devoted to an intensive general study of the three principal areas in the discipline — bibliography and textual analysis, literary history, and literary criticism — and to the relationships among them. In the study of literary criticism, alternative theoretical approaches and applications of them are examined.

*Four semester hours.*

Mr. Sultan.

301b. SEMINAR: CHAUCER.

Not offered, 1970-71.

A detailed study of selected problems of interpretation and evaluation, with wide reading in critical material and general background. Independent and original study is emphasized. Prerequisite: English 201b and consent of the instructor.

*Four semester hours.*

Mr. Anderson.

315a. SEMINAR: SPECIAL STUDIES IN SHAKESPEARE.

Not offered, 1970-71.

A detailed study of selected problems of interpretation and evaluation, with wide reading in critical material and general background. Independent and original study is emphasized. Prerequisite: English 213 and consent of the instructor.

*Four semester hours.*

Mr. Anderson.

#### GRADUATE READING AND THESIS COURSES

31. } READING COURSE.

310. } MASTER'S THESIS.

Staff.

## Fine Arts

#### DEPARTMENT FACULTY

Samuel P. Cowardin, III, Ph.D., *Associate Professor of Fine Arts,*  
*Department Chairman\**

Sante Graziani, M.F.A., *Associate Professor (affiliate) of Fine Arts*

John T. Murphey, B.S., in Ed., *Assistant Professor of Fine Arts*

*\*On leave of absence 1970-71.*

#### UNDERGRADUATE PROGRAM

The department offers a selection of courses designed to foster understanding and sensitivity in the visual arts through direct contact with the materials of art or the study of artistic achievement in a variety of areas and historical periods.

The major in fine arts is offered in conjunction with the School of the Worcester Art Museum. All advanced studio courses at the museum are designated below as Fine Arts 199 and are described in the catalog of the School of the Worcester Art Museum. These courses are ordinarily open only to students majoring in fine arts.

The major comprises at least 36 hours of studio work at the museum, plus Fine Arts 11 and six additional hours chosen from one or more of the following areas or courses: European civilization (Classical, French, German), music; History 10, Philosophy 16a (Esthetics), Psychology 11. To meet the requirements for the bachelor's degree, all majors must satisfactorily complete 36 hours outside the following areas or courses: art history and studio art, European civilization, literature (English and foreign), music; History 10, Philosophy 16a, Psychology 11. No more than 60 hours in studio courses may normally be counted, and at least 30 hours must be taken in courses at Clark University. Clark fine arts majors are expected to observe the attendance regulations and, so far as possible, the calendar of the School of the Worcester Art Museum.

*At the time of application for admission to Clark, every candidate who plans to major in fine arts should submit about a dozen color slides of representative work in as wide a range of media as possible. Slides should be mailed direct to The Clerk of the School of the Worcester Art Museum, 55 Salisbury Street, Worcester, Massachusetts 01608. The deadline for slides is February 1. A similar selection of slides should also be submitted by any undergraduate desiring to enter the program at a later date.*

## COURSES

### F11. INTRODUCTION TO WESTERN ART.

Lectures during the first four weeks deal with general topics such as design principles and technical procedures. The remainder of the course treats significant works of architecture, sculpture, and painting in the light of their times. First semester prerequisite to the second.

*Three semester hours each semester.*

Instructor to be announced.

### F12b. SURVEY OF WESTERN PAINTING.

Not offered, 1970-71.

General problems of pictorial expression are treated as well as the historical aspects of style. May not be counted in addition to the second semester of Fine Arts 11. Primarily for freshmen and sophomores.

*Three semester hours.*

Mr. Cowardin.

### F14a. INTRODUCTION TO THE VISUAL ARTS.

Not offered, 1970-71.

Each of the visual arts is treated in a non-historical way, with special regard for the physical nature of the medium and its expressive potential. May not be counted in addition to the first semester of Fine Arts 11. Primarily for freshmen and sophomores.

*Three semester hours.*

Mr. Cowardin.

### 15. ART OF THE RENAISSANCE IN ITALY.

Not offered, 1970-71.

Prerequisite: Fine Arts F11 or F12b, or permission of the instructor. Offered in alternate years.

*Three semester hours each semester.*

Mr. Cowardin.

### 18. ART OF THE MODERN WORLD.

Painting, sculpture, and architecture of the nineteenth and twentieth centuries, with special emphasis on the origins and evolution of the modern esthetic attitude and its progress to date.

*Three semester hours each semester.*

Mr. Murphey.

### 19a. INTRODUCTION TO ORIENTAL ART:

#### THE ANCIENT NEAR EAST AND INDIA.

Not offered, 1970-71.

Prerequisite: at least one semester course in art history. Offered in alternate years.

*Three semester hours.*

Mr. Cowardin.

19b. INTRODUCTION TO ORIENTAL ART: CHINA AND JAPAN. Not offered, 1970-71.  
Prerequisite: at least one semester course in art history. Offered in alternate years.  
*Three semester hours.* Mr. Cowardin.

F100. ART WORKSHOP.

A studio course on campus which puts the student in direct contact with the materials and techniques of producing a work of art. Designed especially for the non-major, its purpose is to intensify artistic awareness through direct work in esthetic problem-solving. Uses a variety of media and approaches. In special circumstances may be counted toward the major in lieu of Fine Arts 111. Six studio hours per week. Indivisible course.  
*Four semester hours each semester.* Mr. Murphey.

F110. BASIC DRAWING.

Given at the School of the Worcester Art Museum. Open to freshmen who plan to major in fine arts. Indivisible course.  
*Three semester hours each semester.* Museum School Staff.

F111. BASIC PAINTING.

Given at the School of the Worcester Art Museum. Open to freshmen who plan to major in fine arts. Indivisible course.  
*Three semester hours each semester.* Museum School Staff.

F112b. EYE-TRAINING.

A lecture-workshop course in esthetic visual experience. Based on a purely visual approach, as distinct from matters of content and association, the course progresses systematically through the visual elements (line, shape, color, etc.) and composition relationships. The student exercises his skill of artistic seeing and uses simple media in daily practice assignments analyzing both art and his environment. A flexible term project involving almost any media in an abstract approach is required. Previous art experience not necessary.  
*Three semester hours.* Mr. Murphey.

199. ADVANCED PAINTING AND DESIGN.

General designation for all courses at the School of the Worcester Art Museum above the elementary level. Ordinarily open only to majors. Consult the department for semester hours.  
Museum School Staff.

## Geography

### FACULTY

Saul B. Cohen, Ph.D., *Professor of Geography; Department Chairman, Director of the Graduate School of Geography*  
Leonard Berry, M.Sc., *Professor of Geography\**  
James M. Blaut, Ph.D., *Professor of Geography*  
Gerald J. Karaska, Ph.D., *Professor of Geography; Editor of Economic Geography*  
Robert W. Kates, Ph.D., *Professor of Geography\*\**  
Duane S. Knos, Ph.D., *Professor of Geography*  
Henry J. Warman, Ph.D., *Professor of Geography*



Jeremy Anderson, Ph.D., *Associate Professor of Geography*  
 Robert Beck, Ph.D., *Associate Professor of Psychology and Geography*  
 Martyn J. Bowden, Ph.D., *Associate Professor of Geography\*\**  
 William A. Koelsch, Ph.D., *Associate Professor of History*  
     *and Geography*  
 Lawrence A. Lewis, Ph.D., *Associate Professor of Geography*  
 David Stea, Ph.D., *Associate Professor of Geography*  
     *and Psychology*  
 Roger E. Kasperson, Ph.D., *Associate Professor of Government and*  
     *Geography*  
 George F. McCleary, Jr., Ph.D., *Assistant Professor of Geography*  
 J. Richard Peet, Ph.D., *Assistant Professor of Geography*  
 Richard A. Howard, M.A., *Assistant Professor (Affiliate) in*  
     *Computer Sciences*  
 Hugh Prince, Ph.D., *Visiting Professor of Geography*

#### STAFF

John Allen, Ph.D., *Post Doctoral Fellow*  
 David Lowenthal, Ph.D., *Research Affiliate*  
 Carolyn C. Weiss, M.A., *Research Associate in Cartography*

#### PROFESSORS EMERITI IN RESIDENCE

Raymond E. Murphy, Ph.D., *Professor of Economic Geography,*  
     *Emeritus*  
 Samuel Van Valkenberg, Ph.D., *Professor of Geography, Emeritus*

\*On leave of absence, 1969-70.

\*\*On leave of absence, Semester II, 1969-70.

\*\*\*On leave of absence, 1970-71.

When the Graduate School of Geography was organized in 1921, Clark became the second university in the United States to establish a separate graduate program in geography. At the present time, advanced training is provided leading to the Master's and Doctor's degrees. In addition, the school offers an undergraduate major. Clark is a center for geographical training and research in the United States, and its various offerings provide a maximum of individual attention through student-teacher dialogue.

#### UNDERGRADUATE PROGRAM

Majors in Geography are required to take four to five year courses in Geography, and at least three to four year courses in related fields. Related fields include all fields listed under Group B (Social Science) except philosophy and linguistics. Related fields also include geology and selected courses in psychology. A student must take 36 hours outside of the geography courses and related fields defined here to meet the requirements for the bachelor's degree.

Geography 11a, Approaches to Geography, and two of the following three courses (11b, Introduction to Physical Geography; 15b, Introduction to Economic Geography; 17b, Introduction to Cultural Geography) are required of majors. These are usually taken in the freshman or sophomore years. The other required courses are Geography 291a, and either Geography 247a, a second-year level language course, or Geography 249a.

An Honors Program in Geography offers opportunity for independent study and research. Information regarding the program can be obtained from the School.

#### THE GRADUATE SCHOOL OF GEOGRAPHY

*Admission:* Applicants without prior training in Geography are welcome, but depending on their concentrations, may be required to improve their knowledge of Elements of Geography, Economic Geography, Cartography, or Descriptive Statistics. Courses taken to remedy any deficiencies will not count as part of the regular program. The Graduate Record Examination scores (Verbal and Quantitative) are required of all students with the exception of those in foreign countries. The GRE Advanced Placement Test in Geography is desirable, but not required.

*Degree Objectives:* The graduate program in Geography at Clark has been derived from a synthesis of faculty-student discussions, documents and experiences. The Ph.D. training program stands as the central thrust in the Graduate School of Geography at Clark. In the context of the graduate training program, it is assumed that students may wish to pursue two tracks: One, the traditional Ph.D. with its training and experiential requirements in research and in teaching (assuming minimal steps for competence in the latter); the other, the Ph.D. with training related directly to the competence of individuals as college Geography teachers, the thrust being in a combination of work relating to the teaching and learning of Geography as a Social Science, and specialization in one major sub-field in Geography. The new T.T.T. program in geography (Training of Teachers of Teachers) is a focus for this track.

The School of Geography fosters student and faculty exchange with other institutions, including institutions outside the field of Geography and with Geography departments elsewhere. Clark has long encouraged ties with foreign Geography students and faculty. Focus, in recent years, has also included links with developing institutions in the U. S. through training of prospective faculty and facilitating programs.

*Specialized Programs in Sub-Fields:* The curriculum is organized to focus on specialized programs in sub-fields of Geography. Such sub-fields are developed around a series of sequentially-oriented courses which, in general, will occupy from one-third to no more than one-half of the student's formal doctoral program. The sub-fields will be organized in accordance with the interests, competencies and breadth of the staff. Programs in Environmental Management, Environmental Behavior, Political and Economic Geography, Geography and its Teaching, are examples of concentrations currently under development. Minor field concentration is also required, permitting, as a side benefit, shifts in the major concentration or sub-field. Therefore, even those students who arrive with pre-conceived notions about the major concentration will have opportunities to switch to other fields. In general, sub-fields are organized around committees with four to five staff members. Responsibility for supervision of the student's course, dissertation and other training experiences is with the sub-field adviser.

In organizing the curriculum in this specialized structured manner, there is neither the intention nor the desire to exclude faculty and students who do not wish to operate within the framework of a formal sub-field. Students may wish to create their own personalized programs or fields of concentration outside of the formal sub-fields. The only limit to this lies in the general nature of the offerings and in the interests and competencies of staff. Where formal, specialized programs do not exist, it becomes the responsibility of the major adviser to develop, together with the students, a program whose

various prerequisites will follow the general form and intent of the Clark Graduate Geography program. Development and evaluation of specialized programs rests heavily on the activities of joint student-faculty committees. Passing off prerequisites (e.g. substantive course background, statistical methods, computer science, cartography) is essentially the responsibility of the specialized concentration, as is the encouragement of cross-disciplinary training.

*Core Course:* An introductory, core course is required of all entering graduate students, and offered in the first semester of residence. The course is concerned with MODELS, EXPLANATION AND VALUES IN GEOGRAPHY, and emphasizes the various approaches to problem formulation in the field. A limited portion of the course permits students to become acquainted with the various members of the staff and their offerings. This Core Course carries from three to six credits, depending upon the background of the student. It is assumed that most students entering with an A.B. will register for six credits; those entering with an M.A. may register for only three credits, tailoring their exposure to the course to their backgrounds. This Core Course will not be graded. Papers, exercises and reports are used as a basis for diagnosing and evaluating student performance.

*Formal Course Requirements:* Other than the Core Course and those courses considered prerequisite to the specialized or individually-tailored program, no formal course requirements are set. It is the full responsibility of a student's adviser to require that a student take courses in areas of deficiency. Such courses might be required on a formal basis, on an audit basis, or through organized readings.

*Residence Requirement:* A three-year residence beyond the A.B. degree is required for Ph.D. program. One of the years in residence must be the year in which the dissertation proposal is submitted and approved, and, as part of the three-year residence the student must remain in residence for one semester (or one summer under direct supervision) following approval of the outline to work on the dissertation. After approval of the dissertation proposal, if the dissertation is not completed by the end of four years, the proposal must be submitted for re-approval. One prerequisite for such reapproval is provision for one academic semester's residence during the next year to work on the dissertation. (Twelve weeks during the summer is considered the equivalent of an academic year semester for this purpose, with the proviso that a faculty member be in residence at Clark during the summer and express a willingness to supervise.) Upon completion of all formal requirements, save the completion of the dissertation, the student is expected to file for candidacy with the Graduate School, unless specific permission not to file is granted by the School of Geography. Students entering with an M.A. in a field other than Geography will be expected to take essentially the three year residence program. Students entering with an M.A. in Geography from another institution may expect to complete their residence in five semesters, or two and one-half years.

*Teaching or Research Prerequisite:* Some research or teaching experience at Clark (or its equivalent at another institution) is prerequisite to the Doctor's degree. Every effort is made to organize various forms of internships to provide on-and-off-campus training activities, at the research and teaching levels, generally at the end of the second year of residence.



*Doctor of Philosophy:**A. Language and/or Alternative Requirement:*

Options to examination in a traditional foreign language are available. These include (1) computer science, (2) statistical methods, and (3) cartography; in addition, other options can be required or made available by individual concentrations, with the approval of the faculty. The requirement varies with the concentration.

*B. Field Camp*

Field Camp is not a general requirement, but is offered and may be designated as a requirement by specific concentrations.

*C. History and Philosophy of Geography*

The history and philosophy of Geography is required as part of the Ph.D. examination, in the form of a written qualifying essay related to the major sub-field of concentration, demonstrating a knowledge of the intellectual history of the concentration and of its relations to the remainder of the discipline.

*D. The Ph.D. Examination*

All Ph.D. candidates must prepare themselves for examination in three fields. The major field examination consists of a 90 minute oral examination. The student may opt for either a 45 minute oral or a 3 hour written examination in each of the two minor fields. Selection of fields should be made in consultation with the major adviser and the supervisory committee at least two months in advance of the examination dates, and is subject to departmental approval. In selecting the three fields, breadth in an interrelated set of sub-fields, depth in connection with the proposed dissertation topic, or competencies and availability of staff are considerations.

Under normal circumstances it is expected that the language requirement (or its alternatives) will have been successfully met prior to the student's taking the Ph.D. examination. Approval of the dissertation proposal may precede the Ph.D. examination. Doctoral examinations are not normally conducted between May 1 and September 15, and should be requested sixty days before the desired date.

*E. Committee System for Ph.D. Dissertation*

The dissertation committee is composed of five faculty members, with responsibilities for: (a) approval of the outline; (b) reading and reviewing of the dissertation (two readers and three reviewers); and (c) participating in the dissertation defense. Before the proposal is presented to the dissertation committee for approval, it is presented formally at a specially convened, open, student-faculty meeting, which will serve as a review/discussion session.

When the draft of the dissertation has been approved by the committee, it is made available in three copies to the faculty as a whole. If the defense is adequate, then the dissertation in final form is delivered, with two copies to the departmental office and the ribbon copy to the Registrar.

*Master of Arts:* While the thrust of the Clark Geography Program is at the doctoral level, two types of M.A. degrees will be made available:

*A. The Pre-Doctoral M.A.*

Students working toward the Ph.D. will be granted, upon request, an M.A. degree at the end of the required residence period, having completed: (a) the dissertation proposal; (b) required coursework; (c) the Ph.D. preliminary examination; and (d) a formal research paper approved by the concentration adviser.

### B. *The Non-Doctoral M.A.*

Normally no later than at the end of the first semester of the second year of residence, after a review process that includes a proficiency paper in the concentration at the end of the first year, students may opt or may be advised to shift to a terminal M.A. degree, under which circumstances they will be expected to drop one or two courses in order to write a thesis. This thesis is envisaged as a research paper or short article (15-30 pages, demonstrating an ability to define a problem as well as serving as evidence of research competence. The thesis would be presented in such a manner as to meet the form and standards of a professionally acceptable article, and will be defended as the Masters' Oral Examination. The thesis committee consists of the major advisor and two reviewers. After approved by committee, three copies of the final draft are circulated to the faculty as a whole. Following defense of the thesis, two final copies are delivered to the departmental office and the ribbon copy to the registrar. Thesis defense should be conducted by May 1st to meet June commencement.

### DISTINCTIVE FEATURES AND SPECIALIZATION

The School of Geography is housed in completely new quarters, opened for the fall of 1970. Graduate students are assigned carrels in the Geography Workroom. The Workroom and other sections of the Geography Building contain specialized equipment and research facilities for the use of students and staff. The Libbey Library of the Geography Workroom serves as the student lounge, and the John K. Wright Mezzanine serves as the Reading Room. Workroom fees totaling \$10 per semester are payable on November 1 and March 1.

Cross-disciplinary training, as evidenced by the three joint appointments held by geography faculty with other departments, the clustering of faculty research and teaching interests in several areas having to do with the man-environment system; and specialization in urban-economic, environmental management, environmental behavioral, political, historical, cultural geography and geomorphology currently characterize the school.

### PUBLICATIONS

A professional magazine, *Economic Geography*, is edited by a faculty member. Started at Clark University in 1925, it is the only journal published in English that specializes in economic and urban geography. The magazine has a world-wide distribution with a total circulation of 4,700.

The graduate students, through the years, have maintained the Clark University Geographical Society. The annual publication, *The Monadnock*, keeps School of Geography alumni in touch with each other and with news and scholarly activities in the School.

### COURSES

#### 11a. APPROACHES TO GEOGRAPHY.

A general framework for understanding geography for those with curiosity about the field. History and philosophy of the field and the various approaches to geographic research that are employed in its major sub-fields, the latter to be treated partly in the form of case studies. For freshmen and sophomores; juniors and seniors admitted with consent of instructor.

*Four semester hours.*

Mr. Knos, Coordinator, and Staff.

**11b. INTRODUCTION TO PHYSICAL GEOGRAPHY.**

Physical geography, with emphasis on the principles of physiography and climatology. Open to freshmen and sophomores; juniors and seniors admitted with consent of instructor. *Three semester hours.* Mr. Berry or Mr. Lewis.

**15b. INTRODUCTION TO ECONOMIC GEOGRAPHY.**

Introduction to major areal differences in economic activity in the primary, secondary and tertiary sectors. For freshmen and sophomores; juniors and seniors admitted by consent of the instructor. *Three semester hours.* Mr. Anderson.

**17b. INTRODUCTION TO CULTURAL GEOGRAPHY.**

Study of the effect of culture on the earth, and the varying uses of natural resources at different cultural levels. For freshmen and sophomores; juniors and seniors admitted by consent of instructor. *Three semester hours.* Mr. Blaut.

**19b. MAP APPRECIATION AND READING.**

Offered Semester 1.

The philosophy and history of maps and mapping; types of maps and elements of maps. A general liberal arts approach to maps and cartography. *Three semester hours.* Mr. McCleary.

**114a. PRINCIPLES OF GEOMORPHOLOGY.**

The analysis and distribution of physical features in the geographic landscape, with emphasis on the processes affecting the landforms. Prerequisite: Geography 11b or Geology 12, or equivalent. *Three semester hours each semester.* Mr. Berry or Mr. Lewis.

**120a. ELEMENTS OF PHYSICAL CLIMATOLOGY.**

Not offered, 1970-71.

A survey of the elements of climate, atmospheric circulation and the exchange of heat and moisture between the earth and its atmosphere. Prerequisite: Geography 11b or consent of the instructor. *Three semester hours.*

**131b. THE GEOGRAPHY OF INTERNATIONAL POLITICS.**

Concentrates on the impress of politics upon landscape in unique regional settings. Problem-oriented, within the context of a world regional survey, with emphasis on the Middle East and Southeast Asia. Prerequisite: Geography 11a or Government 14. *Three semester hours.* Mr. Cohen and Mr. Kasperson.

**150a. CONFLICT AND COMPLEXITY: A COMPUTER APPROACH TO NATURAL RESOURCE PLANNING.**

A computer simulation of land and water resource planning. Students assume the roles of technical experts confronting complexity in natural resource ecology, conflicting planning objectives and social values, and an uncertain environment and technology. *Four semester hours.* Mr. Dworkin, Mr. Howard, Mr. Kasperson, and Mr. Kates.

**160a. INDUSTRIAL GEOGRAPHY.**

Introduction to location theory; the growth of central urban-industrial regions and the stagnation of underdeveloped peripheries; interregional industrial competition and the formation of pockets of unemployment within manufacturing belts. *Three semester hours.* Mr. Peet.



**161b. GEOGRAPHY OF AMERICAN POVERTY.**

The extent and location of poverty in the United States. Government anti-poverty policy and some alternative socialist strategies. Poverty regions of the rural periphery – Appalachia, the South, the Spanish Southwest. Migration of poor people. Ghetto formation in northern cities.

*Three semester hours.*

Mr. Peet.

**188b. EAST AFRICA: PROBLEMS OF A DEVELOPING REGION. Not offered, 1970-71.**

An interdisciplinary approach designed to convey to the student a sense of East Africa place and people and a concern with their needs and problems as they pursue difficult and differing paths of development.

*Two semester hours.*

**200a. GEOGRAPHY IN EDUCATION.**

Designed for students intending to teach geography as a separate subject or in the social studies; for supervisory personnel and for teachers in service. Subject-matter course treats various geographic factors and concepts separately but in their sequences and inter-relationships. References made to and work experience in techniques and methodology. Signature of instructor required.

*Four semester hours.*

Mr. Warman.

**202. HONORS.**

Independent study, reading and research. Open only to honors undergraduates.

*Four to six semester hours.*

Staff.

**209a. BEHAVIORAL SCIENCE AND THE ENVIRONMENT.**

Human and animal social behavior related to aspects of the physical environment. Social interaction, territory, density, movement, and migration. Introduction to environmental design; problem formulation, decision processes, simulation. (Offered jointly with Psychology Department). Prerequisite: permission of instructor. Limited to 15 students.

*Four semester hours each semester.*

Mr. Stea.

**214. REGIONAL PHYSIOGRAPHY.**

**Not offered, 1970-71.**

The regional interpretation of major land forms and their inter-relationships with climate, vegetation and soils. Prerequisite Geography 114a or equivalent.

*Four semester hours.*

Mr. Schick.

**221b. REGIONAL CLIMATOLOGY.**

**Not offered, 1970-71.**

World classification and description of climates. The various classifications of climate, especially as related to vegetation. Prerequisite: Geography 120a or consent of the instructor.

*Four semester hours.*

**230a,b. POLITICAL GEOGRAPHY AND ITS SPATIAL CONSEQUENCES.**

Theory and methodology in Political Geography. Political processes and landscape interaction, at varying levels of the political hierarchy (national, urban, international). Attention to such topics as equilibrium, systems, decision-making, political action space. Open to juniors and seniors. Prerequisite: Geography 11a or Government 14.

*Four semester hours each semester.*

Mr. Cohen, 1st Sem.; Mr. Kasperson, 2nd Sem.

**240b. AGRICULTURAL SYSTEMS.**

*Four semester hours.*

Mr. Anderson.

**241a. FOREST RESOURCE MANAGEMENT.**

The principles of forest management will be presented, with the Harvard Forest to be used as a field laboratory. Four full day field trips are scheduled on Saturdays. Prerequisite: Permission of instructor. Limited to ten students.

*Two semester hours.*

Mr. Howard.

**242b. HISTORICAL GEOGRAPHY OF THE CHANGING COUNTRYSIDE.**

The historical development of towns and industry and the changing landscape in England.

*Four semester hours.*

Mr. Prince.

**252b. HISTORICAL GEOGRAPHY: METHODS, TECHNIQUES AND SOURCES.**

*Four semester hours.*

Mr. Bowden and Mr. Koelsch.

**245b. HISTORICAL GEOGRAPHY OF EASTERN U. S. A.**

**Not offered, 1970-71.**

Studies in settlement and resource utilization on the Eastern Seaboard before 1860.

*Four semester hours.*

**247b. QUANTITATIVE METHODS IN GEOGRAPHY.**

Probability functions and the role of statistical inference in geographical research; descriptive statistics through simple correlation.

*Four hours each semester.*

Mr. Karaska and Mr. Lewis.

**249a. COMPUTER PROGRAMMING IN GEOGRAPHY.**

Fundamentals of Fortran IV programming. Introduction to computer-oriented information, storage, and retrieval systems, and computer-generated maps. Open to majors and graduate students only.

*Four semester hours.*

Mr. Howard.

**261a. URBAN GEOGRAPHY.**

A systematic study of external and internal spatial relationships of cities and city systems. Urbanization viewed as a process in spatial organization involving mutual interrelations among decision units.

*Four semester hours.*

Mr. Knos.

**265a. UNDERGRADUATE SEMINAR ON REGIONAL PLANNING.**

Principles of regional planning with special reference to low income areas in the United States. Prerequisite: Geography 161b and permission. Limited to ten students.

*Four semester hours.*

Mr. Peet.

**269b. ETHNO-GEOGRAPHY.**

Study of the interdisciplinary field embracing parts of cultural geography and cultural anthropology. Emphasis is placed on problems of theory in culture history, primitive economics, and technological change.

*Four semester hours.*

Mr. Blaut.

**272a. RELATIONS OF CULTURE AND ENVIRONMENT.****Not offered, 1970-71.**

An historical approach to study of the interrelations of culture and nature; geochronology; culture change and migrations; agricultural origins and diffusion of plants and animals; culture and environmental perception. Emphasis on sources in the study of particular problems in cultural geography. Open to juniors and seniors. Geography F11a for F17b or equivalent required, or by permission of instructor.

*Four semester hours.*

**273b. SETTLEMENT GEOGRAPHY.****Not offered, 1970-71.**

An historical cultural approach to study of rural and urban settlement patterns; origin and development of field systems and settlement types in Europe and North America; models of settlement; the internal structure and external relations of urban and rural places. Open to juniors and seniors. Geography 11a or 17b or 272a or equivalent required, or by permission of instructor.

*Four semester hours.*

**274b. AGRICULTURAL DEVELOPMENT IN UNDERDEVELOPED AREAS.**

*One semester hour.*

Mr. Blaut.

**284a. REGIONAL GEOGRAPHY OF SOUTH AMERICA.**

*Four semester hours.*

Mr. Warman.

**291a. ELEMENTS OF CARTOGRAPHY.**

Principles of cartography, including scale and map projections; compilation, generalization, symbolization. Two hour weekly laboratory. Required of all majors. Open to sophomore majors or those who have completed Geography 19b. Fulfills the departmental requirements for M.A. candidates.

*Four semester hours.*

Mr. McCleary.

**291b. MAP ANALYSIS AND USE.****Not offered, 1970-71.**

Methods and procedures for the analysis of areal distributions, particularly those expressed in cartographic form. Prerequisite: Geography 291a; a basic knowledge of statistical methods is required.

*Four semester hours.*

**292a. MAP DESIGN.**

Theory and practice in the development of the design of maps. The map is examined as a medium of communication, as a perceived object, and as an information system. Prerequisite: Geography 291a.

*Four semester hours.*

Mr. McCleary.

**294b. CARTOGRAPHIC TECHNIQUES.**

Methods of map preparation and reproduction including computerized mapping programs. Prerequisite: Geography 291a.

*Four semester hours.*

**310a. ENVIRONMENTAL PROCESSES MEASUREMENT AND ASSESSMENT.**

A study of basic environmental processes leading to an analysis of the measurement and assessment of environmental systems. Field studies concentrate on the problems of environmental assessment with alternative sites provided for developing and developed areas.

Mr. Lewis.



**350a. RESOURCE MANAGEMENT: THEORIES, METHODS AND MODELS.**

Economic, cultural, ecological and political decision theories of resource use. Methods of resource measurement and projection. Computer decision models of forest and water management and system design. Mr. Kates, Coordinator, and Staff.

**351a. RESOURCEMANAGEMENT: PROBLEMS OF DEVELOPED AREAS.** Not offered, 1970-71.

Selected managerial problems emphasizing problems of environmental quality and institutional choice and decision making. Mr. Kates, Coordinator, and Staff.

**352b. RESOURCE MANAGEMENT: PROBLEMS OF DEVELOPING AREAS.**

Selected managerial problems emphasizing problems of resource assessment, agricultural development and water resource planning. Mr. Berry, Coordinator, and Staff.

**354b. REGIONAL WATER RESOURCE PLANNING.**

Advanced regional water resource planning methodology is reviewed and then applied by students to a specific region of current interest.

*Four semester hours.* Mr. Schwartz.

**360a. THEORY OF ECONOMIC GEOGRAPHY.**

Construction of theory in geography; agricultural and industrial location theories; inter-regional trade theory; behavioral variation on classical location theory. Mr. Peet.

**399a. FIELD RESEARCH METHODS IN GEOGRAPHY AND FIELD CAMP.**

Theory and techniques of field (observational and survey) research; experimental design. Field camp in January to be held in Puerto Rico; fee \$80-\$100.

*Three semester hours.* Staff.

**SEMINARS**

**30a. SEMINAR IN POPULATION GEOGRAPHY.**

*Three semester hours.* Mr. Warman.

**303. SOCIAL SCIENCE SEMINAR.**

Offered jointly with the History and Economics Department for the Geography and Its Teaching Program.

*Three semester hours.* Staff.

**305. CURRICULUM DEVELOPMENT IN THE TEACHING OF SOCIAL STUDIES.**

*Three semester hours.* Staff.

**308a. SEMINAR ON DEVELOPMENT OF SPATIAL COGNITION.**

An examination of cognitive maps and orientation systems in light of new data from psychological and geographical studies of the perception of large environments. Offered jointly with School of Psychology. Prerequisite: permission of instructor. Limited to 15 students. Mr. Stea.

**309a. SEMINAR ON COGNITION AND TECHNOLOGY.**

*Four semester hours.* Mr. Blaut.

**315b. SEMINAR IN GEOMORPHOLOGY.**

*Three semester hours.* Mr. Berry.

### 330. SEMINAR IN RESEARCH AND TEACHING PARAMETERS IN POLITICAL GEOGRAPHY.

First semester involves a research topic to be handled by one or more teams. Research will concentrate on theory formulation and testing. Second semester includes two levels of responsibility: (1) the design of a series of lectures to be woven into the lecture framework of G230, the object being to translate the research results of the first semester into a teaching situation, and (2) the acceptance of responsibility for supplementary undergraduate tutorial sessions in connection with G131b, the sessions to be organized around the background and interests of seminar participants.

*Three semester hours each semester.*

Mr. Cohen.

### 340b. SEMINAR ON AGRICULTURAL GEOGRAPHY.

Not offered, 1970-71.

*Three semester hours.*

### 353a. ENVIRONMENTAL MANAGEMENT: GROUP RESEARCH SEMINAR.

Student-initiated cooperative research or action-oriented projects for solving applied managerial problems. Can take place at any time, but requires approved topic, at least three student participants, and minimal equivalent of three weeks full-time effort.

*Four semester hours.*

Staff and Students.

### 354a. SEMINAR IN ENVIRONMENTAL SYSTEMS.

Systems analysis and models related to environmental management. Programming experience required.

*Three semester hours.*

Mr. Howard.

### 355a. NATURAL HAZARDS RESEARCH SEMINAR.

A specialized research seminar on human adjustment to natural hazards. The environmental behavior of *homo in extremis* is examined for its theoretical implications for studies of uncertainty, crises and technological change and for its contribution towards reducing the social cost of hazard adjustment.

*Three semester hours.*

Mr. Kates.

### 356b. SEMINAR ON HISTORICAL GEOSOPHY.

Not offered in 1970-71.

An historical approach to the study of perception of regions, space and territory, landscape and physical environment with special emphasis on New England and the American West 1700-1970. Emphasis will be on sources and techniques.

*Four semester hours.*

### 362a. SEMINAR IN NETWORKS AND SETTLEMENT.

Not offered in 1970-71.

Critical appraisal of studies dealing with development of patterns of urban and rural centers; the dynamics of central place and other theories in areas of orthogenetic and heterogenetic transformation. Prerequisite Geography 273b or equivalent or by permission of instructor. Limited to ten students.

### 363b. SEMINAR IN GEOGRAPHY OF POVERTY.

The seminar will focus on underdeveloped America and methods of regional development planning.

*Three semester hours.*

Mr. Peet.

### 366b. SEMINAR IN URBAN GEOGRAPHY.

A review of the regional science literature leading to problems on models and techniques of metropolitan area analysis.

Mr. Karaska.

364b. TRANSPORTATION AND REGIONAL  
ECONOMIC DEVELOPMENT.

The historical role of transportation in the process of regional economic growth.  
*Three semester hours.*

391b. SEMINAR IN CARTOGRAPHY.

*Three semester hours.*

Mr. McCleary.

395b. SEMINAR IN ENVIRONMENTAL LEARNING IN CHILDREN.

Deals with current research in place perception.  
*Two semester hours.*

Mr. Blaut, Coordinator, and Staff.

**READING, RESEARCH AND THESIS COURSES**

300. READING COURSE.

Prerequisite: consent of the instructor.

301. RESEARCH IN GEOGRAPHY.

Prerequisite: consent of the instructor.

302. THESIS AND DISSERTATION RESEARCH.

Single or double course. Prerequisite: consent of the staff.

303. TEACHING AND RESEARCH INTERSHIPS IN GEOGRAPHY.

Prerequisite: consent of the instructor.

Economics 277. REGIONAL ECONOMICS.

*Six semester hours.*

Mr. Puffer.

Economics 290a. ECONOMICS.

*Three semester hours.*

Mr. Puffer.

Economics 302b. ECONOMIC THEORY: MACRO PROBLEMS.

*Three semester hours.*

Mr. Puffer.

Strongly recommended for concentration in Political Geography.

Government 201b. POLITICAL BEHAVIOR.

*Four semester hours.*

Not offered, 1970-71.

Government 230a,b. URBAN GOVERNMENT AND POLITICS.

*Four semester hours.*

Mr. Kasperson.

Government 260b. POLITICS OF ENVIRONMENTAL MANAGEMENT.

*Four semester hours.*

Mr. Kasperson.

History 246a. THE AMERICAN CITY.

*Four semester hours.*

Miss Hareven.

HISTORY 339a. SEMINAR: AMERICAN URBAN HISTORY.

*Four semester hours.*

Miss Hareven, Mr. Von Laue.



**208a. GRAPHIC INFORMATION.**

The nature of two-dimensional graphic information and representation. Reality, images, generations of images and processed images, drawing largely upon psychology, geography and architecture. Mr. Beck.

**209a. GRAPHIC INFORMATION LABORATORY.**

Training and practice in simulation graphics, i.e., sessions in the use of graphic materials and equipment instruction in cartography, outdoor, large scale and aerial photography, architectural sign-notation systems, and sketching the environment. Mr. Beck.

**215b. FLUVIAL PROCESSES IN GEOMORPHOLOGY.**

Not offered, 1970-71.

Application of analytical and experimental techniques to the study of running water and its effects on landforms. Prerequisite: Geography 114a.

**280a. PHILOSOPHY OF GEOGRAPHY.**

*Four semester hours.*

Mr. Blaut.

**285a. REGIONAL GEOGRAPHY OF EUROPE.**

A general regional survey of Europe with emphasis on man-land relationships. No prerequisite.

*Four semester hours.*

Mr. Van Valkenberg.

**288b. THIRD WORLD THROUGH THE LOOKING GLASS.**

Geography and cultures of the Third World as seen from non-Western perspectives. Relations between the Third World and the West. Colonialism, imperialism and revolution reviewed as spatial processes.

*Four semester hours.*

Mr. Blaut.

**290b. REMOTE SENSING SYSTEMS AND IMAGE INTERPRETATION.**

Examination of the means of acquisition, the interpretation, and the utilization of different forms of remote sensing imagery. Emphasis will be placed upon air photo interpretation; attention will also be given to use of non-conventional imagery (infrared, radar, microwave, multispectral), data sampling and processing. Limited to fifteen students. Permission required.

*Three semester hours.*

Mr. Anderson.

**347b. ADVANCED QUANTITATIVE METHODS IN GEOGRAPHY.**

Multivariate analysis including analysis of variance; miscellaneous spatial statistics (including nearest neighbor, graph and game theories, and other analyses).

*Three semester hours.*

Mr. Karaska and Mr. Lewis.

**357b. SEMINAR IN METHODS OF HISTORICAL GEOGRAPHY.**

A systematic treatment of the geography behind history, the reconstruction of the past, the geography of change, the study of the past in the present, the perception of the past and models in historical geography. Mr. Prince.

**358a. PERCEPTION OF THE AMERICAN NORTHWEST, 1673-1806.**

*Four semester hours.*

Mr. Allen.

**358b. PERCEPTION OF THE AMERICAN NORTHWEST, 1806-1890.**

*Four semester hours.*

Mr. Allen.

**365a. SEMINAR IN ENVIRONMENTAL BEHAVIOR.**

Continuation of 365b.

Mr. Stea and Mr. Wohlwill.

# German

## DEPARTMENT FACULTY

Walter Schatzberg, Ph.D., *Associate Professor of German, Department Chairman*

Karl J. R. Arndt, Ph.D., *Professor of German*

James E. Edwards, A.M., *Associate Professor of German*

Gisela Triesch, Ph.D., *Lecturer in German*

## UNDERGRADUATE PROGRAM

The Department of German intends primarily to give its students a liberal and humanistic education by presenting and interpreting the language, life, and literature of German-speaking peoples. Students interested in German as their major should consult the department chairman; for honors programs, Mr. Edwards. The Department requires a regular class attendance in all courses.

Majors in German are required to take six hours of German 154 and 15-24 hours of advanced German literature courses beyond German 14. The German major must also select a minimum of 20 hours in related fields including History 10 or 215, Philosophy and language and literature courses in other departments. In addition, at least 36 semester hours of a major's program must be selected from courses other than those listed above and Group C-D courses.

## FIRST YEAR COURSES

### F11. INTRODUCTORY GERMAN.

This course provides the basis for developing a broad knowledge of the German language, covering aural comprehension, speaking and reading. In the second semester there is a stronger emphasis on reading. Indivisible course.

*Three semester hours each semester.*

Staff.

## SECOND YEAR COURSES

### F12. INTERMEDIATE GERMAN.

Review of German grammar. Reading and discussion of significant works in prose, poetry and the drama to acquaint student with outstanding writers, ideas and movements in German literature.

*Three semester hours each semester.*

Mr. Schatzberg and Mr. Edwards.

### F14. INTRODUCTION TO GERMAN LITERATURE (Intermediate course).

Principally a reading course for students who wish to gain as rapidly as possible a general knowledge of German Literature at the intermediate level. Reading and interpretation of the works of representative German writers. Prerequisite: German 11 or two years of high school German and consent of instructor.

*Three semester hours each semester.*

Mr. Arndt.

## ADVANCED COURSES

### 130. MODERN GERMAN PROSE.

Selected works by Mann, Hesse, Kafka, Dürrenmatt and Grass. Discussions, oral and written reports in German. Prerequisite: German 12.

*Three semester hours each semester.*

Mr. Schatzberg.

- 132. ADVANCED COMPOSITION AND LITERATURE.** Not offered, 1970-71.  
Intensive training in the aural, oral, and written use of the language. Required of majors.  
Prerequisite: oral and written examination.  
*Three semester hours each semester.*
- 134. GERMAN LITERATURE SINCE GOETHE.** Not offered, 1970-71.  
Reading and interpretation of representative works of German literature since Goethe.  
Prerequisite: German 12 or advanced placement.  
*Three semester hours each semester.* Mr. Edwards.
- 136a. GERMAN LYRIC POETRY.**  
German lyric poetry from the Reformation to the present. Prerequisite: German 12.  
*Three semester hours.* Mr. Arndt.
- 138. CONTEMPORARY GERMAN DRAMA.** Not offered, 1970-71.  
Reading and interpretation of outstanding works of contemporary German drama, including plays of Dürrenmatt, Frisch, Hochwälder, Hochhuth, and Peter Weiss. Prerequisite: German 12.  
*Three semester hours each semester.* Mr. Edwards.
- 140a. GERMAN ENLIGHTENMENT.** Not offered, 1970-71.  
Selected readings from the works of Wolff, Gottsched, Brockes, Haller and Lessing. Several Storm and Stress authors will also be considered toward the end of the semester.  
Prerequisite: German 12.  
*Three semester hours.* Mr. Schatzberg.
- 142b. GERMAN ROMANTICISM.** Not offered, 1970-71.  
A study of selected works by the Schlegel Brothers, Novalis, Tieck, Brentano, Chamisso, Fouque, E.T.A. Hoffmann, Eichendorff and Heine. Prerequisite: German 12.  
*Three semester hours.* Mr. Schatzberg.
- 154. HISTORY OF GERMAN LITERATURE.** Not offered, 1970-71.  
Survey of German literature from earliest times to the present. Given in German. Prerequisite: German 132 or consent of the instructor.  
*Three semester hours each semester.* Mr. Edwards.
- 162a. GOETHE'S FAUST.**  
Reading and discussion of Goethe's *Faust I and II*. Given in German. Prerequisite: German 132 or consent of the instructor.  
*Three semester hours.* Mr. Arndt.
- 165b. FROM EXPRESSIONISM TO CATASTROPHE.**  
German literature from World War I to World War II. Given in German. Prerequisite: German 132 or consent of the instructor.  
*Three semester hours.* Mr. Arndt.
- 166. GERMAN DRAMA SINCE KLEIST.** Not offered, 1970-71.  
Given in German.  
*Three semester hours each semester.* Mr. Edwards.



190b. GOETHE.

Not offered, 1970-71.

An introduction to the life and work of Goethe, excepting his Faust. Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Arndt.

192a. SCHILLER.

Not offered, 1970-71.

An introduction to the life and work of Schiller. Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Arndt.

196. INDEPENDENT READING AND RESEARCH IN GERMAN LITERATURE.

Independent course of study limited to highly qualified seniors. Reading and research will be in German and the program arranged individually. Prerequisite: consent of the instructor.

*Three semester hours each semester.*

Staff.

COURSES GIVEN IN ENGLISH

F16. FRESHMAN COLLOQUIUM ON MODERN GERMAN LITERATURE.

The purpose of this course is to examine some of the dominant themes in modern German literature and to acquire skill in interpreting literary works. Enrollment is limited to assure every student the opportunity for active participation. Subject for fall, 1970: Selected prose works of Rilke, Mann, Hesse, Kafka, Grass. Given in English.

*Three semester hours.*

Mr. Schatzberg.

141. GERMANIC CIVILIZATION.

Illustrated lecture course on the literature, history and fine arts of German lands from the Holy Roman Empire to the present day, with emphasis on the Reformation, Age of Enlightenment and the Classical Period. Given in English.

*Three semester hours each semester.*

Mr. Edwards.

197b. THE FAUST THEME IN LITERATURE.

A study of the fortunes of Faust and the Faustian spirit as treated in European and American literature from the Reformation to Hiroshima. Given in English. Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Arndt.

198. SEMINAR.

Principally for advanced students of literature, this course aims at an interdisciplinary approach. Topic varies.

*Three semester hours.*

Staff.

199. THE GERMAN CONTRIBUTION TO WORLD LITERATURE. Not offered, 1970-71.

Goethe in 1827: "The epoch of world literature is here and everyone must now work to hasten the development of this epoch." Reading, analysis and discussion of translated works from various periods of German literature, starting with the *Song of the Nibelungs* and ending with representative works of the currently dominant "Group 1947." Given in English. Prerequisite: consent of the instructor.

*Three semester hours each semester.*

Mr. Arndt.

# Government and International Relations

## DEPARTMENT FACULTY

Morris H. Cohen, Ph.D., *Professor of Government, Department Chairman*

Sherman S. Hayden, Ph.D., *Professor of International Relations*

Allen E. Goodman, Ph.D., *Assistant Professor of Government and International Relations*

Roger E. Kasperson, Ph.D., *Associate Professor of Government and Geography*

Knud Rasmussen, Ph.D., *Associate Professor of Government*

## UNDERGRADUATE PROGRAM

Majors in government must take Government 159a, 15, and 205a and b, preferably in the freshman, sophomore and junior years respectively, and are expected further to take four additional hours in American government and politics, twelve other hours in government, and twelve hours selected from economics, geography, history, psychology and sociology.

Majors in international relations should take Government 159b and History 10 in the freshman year and Economics 11 and Government 14 before the end of the sophomore year. Also required are Government 240a or 242b, 241, and twelve hours selected from economics, geography, history, and from other government courses.

Thirty-six hours of any major program must normally be selected from fields *other than* those listed in the two paragraphs preceding. Some courses in those fields may be counted as unrelated to the major. The student should consult with department faculty in cases of doubt. Proficiency in a foreign language at the level normally attained by two years study is required in an international relations major and strongly recommended of the government major (mathematics or statistics may, however, be substituted).

## GRADUATE PROGRAM

*Master of Arts:* A thirty-hour program, including a master's thesis, is available in either government or international relations. A complete draft of the thesis must be received promptly after the spring recess if the candidate is to obtain the degree that June. An oral examination is also required. A candidate is expected to spend one year in residence for this degree.

*Doctor of Philosophy:* The Doctorate in Government is not offered at the present time. A doctorate in International Relations may be acquired, in cooperation with the history department. At least one year's residence is absolutely required. Every doctoral program consists of four selected fields, one or two for written examination, the rest for oral. These examinations together constitute the "preliminaries".

Before completing the preliminaries, examinations in French and German must be passed. Another language may be substituted, with permission, for one of these, or a second examination in a single language designed to demonstrate full research competence. Competence in statistics may be substituted for one language, with permission.

The doctoral dissertation, in a designated special field, must be submitted in complete first draft no later than March 1 of the year wherein the degree is expected. The final examination covers both the dissertation and the special field.

Teaching experience at Clark or any teaching accepted as equivalent, is prerequisite to this degree.

## COURSES

### 14. INTERNATIONAL RELATIONS.

A survey of world politics since 1918, with emphasis on the shifting patterns of power and the rise of new nations and revolutionary doctrines. The second semester deals mainly with events since World War II.

*Three semester hours each semester.*

Mr. Hayden.

### 15. INTRODUCTION TO AMERICAN GOVERNMENT.

A short survey of the theories of the origins and purposes of the state is followed by a study of American government with emphasis on contemporary problems of the federal government.

*Three semester hours each semester.*

Mr. Cohen.

### 159a. INTRODUCTION TO POLITICAL SCIENCE.

A survey of the components of political science with discussion of the development of the discipline. Some emphasis will be placed upon the systematic analytic study of modern political systems.

*Three semester hours.*

Mr. Rasmussen.

### 201b. POLITICAL BEHAVIOR.

Not offered, 1970-1971.

Causes and forms of political behavior, their relation to the functioning of the political system: political socialization, imagery, apathy and alienation, decision-making, electoral behavior. Offered in alternate years. Prerequisite: Government 159a.

*Four semester hours.*

Mr. Kasperson.

### 205a. ROOTS OF POLITICAL THOUGHT.

A study of the development of Western political thought from the Socratic philosophies to Hobbes. The study will deal with the evolution of political thought in the context of influential, social, political, and economic forces.

*Four semester hours.*

Mr. Rasmussen.

### 205b. RECENT POLITICAL THOUGHT.

A study of modern political theory as developed in the context of the social, political, and economic forces which have shaped Western thought since the French Revolution.

*Four semester hours.*

Mr. Rasmussen.

### 207b. BLACK POLITICAL THOUGHT.

A study tracing a conscious development within the black community starting from the slave society and moving to the present. In the process, three lines of thought are developed: a) the political thought of accommodation, b) the political thought of protest, and c) the political thought of revolutionary confrontation. A series of films and guest speakers covers material not included in the required reading.

*Four semester hours.*

Mr. Rasmussen.



**230. URBAN GOVERNMENT AND POLITICS.**

Structure and process in American urban policies, the role of political actors in policy formulation and conflict resolution. First semester deals with political ethos, urban power structure, political actors, and selected case studies. Second semester emphasizes student research. Prerequisite: Government 15 or 159a.

*Four semester hours each semester.*

Mr. Kasperson.

**240a. SEMINAR IN INTERNATIONAL RELATIONS.**

Basic ideas and their application to current problems. This or 242b required for international relations majors. Open to a limited number of non-majors at the discretion of the instructor.

*Four semester hours.*

Mr. Hayden.

**241. INTERNATIONAL LAW AND ORGANIZATION.**

First semester deals with the historic principles of international law and their application in the modern world. Second semester deals with the institutions created to handle problems of commerce, welfare and collective security on an international basis. Offered in alternate years.

*Four semester hours each semester.*

Mr. Hayden.

**242b. INTERNATIONAL POLITICS.**

Not offered, 1970-71.

A study of contemporary trends in international politics. Some emphasis will be placed on a systematic study of the national versus the international community. This course or 240b required for international relations majors.

*Four semester hours.*

Mr. Rasmussen.

**25b. COMPARATIVE GOVERNMENT.**

A comparative study of the major West European political systems. Some study of the political historic development will lay the basis for comparison of modern functions of government.

*Four semester hours.*

Mr. Rasmussen.

**250. SEMINAR IN 20TH CENTURY POLITICAL THEORY.**

A study of normative and analytic theory. Some emphasis will be placed on the individual in a modern mass society and the impact the development of the mass society has had upon theory. Prerequisite: Roots of Political Thought and Recent Political Thought or the permission of the instructor.

*Four semester hours.*

Mr. Rasmussen.

**251a. AMERICAN POLITICAL PARTIES.**

American party organizations, pressure groups and the electorate in American politics, with emphasis on current problems and trends in the field. Offered in alternate years.

*Four semester hours.*

Mr. Cohen.

**252a. PUBLIC ADMINISTRATION.**

Not offered, 1970-71.

254a. and b. AMERICAN CONSTITUTIONAL LAW.

254a Not offered, 1970-71.

A study of the major developments and problems in American constitutional law, with emphasis on the case approach and on historical and non-civil liberties issues in the first semester. The second semester is concerned with contemporary cases and problems in civil liberties.

*Four semester hours each semester.*

Mr. Cohen.

255b. SEMINAR IN THE LEGISLATIVE PROCESS.

A study of policy-making in Congress, involving problems of legislative organization and procedure, leadership and presidential-legislative relationships, examined primarily by the case method and by individual research on particular pieces of recent legislation.

*Four semester hours.*

Mr. Cohen.

260b. POLITICS OF ENVIRONMENTAL MANAGEMENT.

Problems and processes in the public management of the natural environment: the public interest, natural resource policy, the planning process, allocation conflicts, grass-root participation.

*Four semester hours.*

Mr. Kasperson.

351a. PROBLEMS IN AMERICAN GOVERNMENT AND POLITICS.

*Four semester hours.*

Mr. Cohen.

**GRADUATE READING AND THESIS COURSES**

34. READING }  
340. THESIS } IN INTERNATIONAL RELATIONS. Mr. Hayden and Mr. Rasmussen.

35. READING }  
350. THESIS } IN GOVERNMENT AND POLITICS.

Mr. Cohen, Mr. Kasperson, and Mr. Rasmussen.



# History

## DEPARTMENT FACULTY

Daniel R. Borg, Ph.D., *Associate Professor of European History,*  
*Department Chairman*

Thomas C. Barrow, Ph.D., *Professor of American History\**

George A. Billias, Ph.D., *Professor of American History*

Robert F. Campbell, Ph.D., *Professor of American History*

Theodore H. Von Laue, Ph.D., *Jacob and Frances Hiatt Professor of European History*

Richard B. Ford, Ph.D., *Associate Professor of African History\*\**

Tamara K. Hareven, Ph.D., *Associate Professor of American History*

William A. Koelsch, Ph.D., *Associate Professor of American History and Geography*

Paul Lucas, Ph.D., *Associate Professor of European History*

David W. Savage, Ph.D., *Assistant Professor of English History*

Marcus A. McCorison, M.S., *Lecturer in American History, Director of the American Antiquarian Society*

## *Professors Emeriti in Residence:*

H. Donaldson Jordan, Ph.D., *Professor of English History, Emeritus*

Dwight E. Lee, Ph.D., *Jacob and Frances Hiatt Professor of European History, Emeritus*

\*On leave of absence, first semester, 1970-71.

\*\*On leave of absence, second semester, 1970-71.

## UNDERGRADUATE PROGRAM

*Undergraduate Major:* A student majoring in history normally elects History 10 plus 32 additional credit hours in history. Students may be excused from History 10 if they have achieved a high level of performance on Advanced Placement examinations or demonstrate an advanced knowledge of modern Western history. Of the advanced (200 level) history courses in a major's program, at least eight hours must be in American and at least eight hours in non-American history.

An additional twelve hours must be taken in one of two areas of concentration in departments designated by the history department as related fields: either (1) *social sciences:* economics, geography, government, psychology, sociology; or (2) *humanities:* philosophy, languages, literature, art, music, theatre arts.

University regulations require that a student must take and pass at least 36 hours outside the area of concentration designated by the student's major department. In the case of a history major the 36-hour requirement would be met by taking any courses, including the natural sciences, not listed in the concentration (1 or 2 above) he selects.

The department recommends, though it does not require, that its undergraduate majors attain proficiency in at least one modern foreign language. Students planning to go on to graduate school are advised that demonstration of competence in one or more appropriate foreign languages is an important consideration in the admissions and fellowship award process of most leading universities. Students should also note that a knowledge of statistics and computer usage is highly desirable for advanced work in history.



*Special Programs:* Majors in history are encouraged to work out in consultation with their adviser a coherent program of study. Special attention should be paid to opportunities for interdisciplinary programs of study. A few examples follow:

|                  |                       |
|------------------|-----------------------|
| French Studies   | Social History        |
| English Studies  | Intellectual History  |
| Black Studies    | Economic History      |
| German Studies   | International Affairs |
| American Studies | Political History     |
| Urban Studies    | Historical Geography  |

Whatever special program the student chooses to pursue, the Department recommends that he submit to his adviser *in writing* a statement of the purpose of his program and a tentative list of courses. Such conscious planning is desired but not required of the major.

Students may extend the scope of their undergraduate programs through the offerings of cooperating colleges in Worcester, by independent study and research, and in the honors program in history. Further information about these matters is available from the department chairman or other members of the department.

## GRADUATE PROGRAM

The principal areas of graduate study are American, English, and modern European history. The department's affiliation with the American Antiquarian Society provides graduate students with the facilities of one of the country's finest research libraries, with over 750,000 volumes and many valuable manuscripts relating to early American history down to 1876. A dozen smaller libraries in Worcester, with combined holdings of over a million volumes, further extend the resources of the Clark Library, as does easy access to Boston, Providence, and New Haven area research facilities.

Course offerings on the graduate level distinguish between reading seminars ("colloquia") and research seminars (simply "seminars"). Whether in the Ph.D. or M.A. programs, students register for a research seminar or an individual research course in each semester of their formal residence, and all students take the Departmental Seminar (300). A first-year student (whether M.A. or Ph.D.) takes four courses each semester; a second-year Ph.D. student registers for only three in each semester. (Full-time residence is expected of all graduate students in their first two years.) Beyond the seminar requirement, students fill out their programs by taking colloquia, additional research seminars, independent study and research courses, and upper-division undergraduate history courses. The chairman initially assigns students to advisers, who help work out individual programs. With the permission of his adviser, a student is encouraged to take suitable courses in other departments.

*Master of Arts:* Students interested primarily in an M.A. degree and not in the doctorate are normally not admitted to graduate study. The M.A. is awarded to graduate students who have completed the course and one-year residence requirements, have written substantial research papers in two seminars or in individual research courses and have passed the required oral examination.

## DOCTOR OF PHILOSOPHY

The Department offers two related doctoral programs. One, known as the TTT program, combines the traditional core of the doctoral program with a study of interdisciplinary

nary techniques and experience in curriculum development and teaching. Information may be obtained from Professor Ford, the Director of the TTT program. The second doctoral program is the traditional one described below.

The traditional doctoral program is designed to enable students to master the discipline of history through research, reading, and teaching. In addition to meeting the seminar and course requirements outlined above, a student must spend at least two years in residence at Clark, satisfy the language requirement, gain some experience in college teaching, pass a preliminary examination, and write a doctoral dissertation within seven years of matriculation.

*Language Requirement:* Students concentrating in American and British history must pass an examination in one foreign language: French, German, Spanish, or Russian. Those specializing in European history must pass examinations in two foreign languages, normally French and German. The chairman will designate an examiner in each language, who will determine whether the student is proficient enough to use the language as a research tool. An entering student must take a language examination as soon as it is offered in his first semester of residence, and must have passed this examination by the end of the first calendar year of residence in order to register for his second year. If required, the second language examination should be attempted early in the second year and must be completed before the student registers for his third year. All language requirements must be satisfied before the preliminary oral examination can be scheduled.

*Teaching Experience:* Some teaching experience at the college level is a prerequisite to the Ph.D. degree. A number of students serve as assistants in History 10 and other courses in their third year of residence, while others teach in cooperating institutions in the Worcester area.

*Fields:* Soon after arriving at Clark, the student, in cooperation with his adviser, defines four fields and prepares for them in whatever ways seem appropriate in view of his background and interests. Students specializing in American history normally offer the full scope of American history as two fields. Those concentrating in non-American history normally offer one American field (the dividing line between the two American fields generally falls at 1815). Any student may offer a non-historical subject as a field, usually within the social sciences, or prepare a field in social science theory and research techniques.

*Preliminary Examination:* One of the four fields is completed early through an oral examination, and the remaining three fields are tested in an oral examination, which must be attempted by the fall of the third year. The two oral examinations over the four fields constitute the "preliminary examination" required by the Graduate Board.

*Dissertation:* Students are advised to consider and explore dissertation topics during their years of residence and to choose a possible dissertation adviser as soon as possible. After submitting a complete draft to his adviser, the student must defend his thesis and answer questions covering the related thesis field in a final examination.

*Deadline for Completion:* All work required for the doctor's degree *must* be completed within a seven year period after matriculation. In unusual circumstances only, such as involuntary military service or extended illness, the department may grant a specified extension of time.

## COURSES

Unless otherwise indicated, all courses carry four hours credit. The term *proseminar* indicates courses of limited enrollment that combine reading, discussion, and reports.

### F10a. HISTORY OF EUROPE AND THE UNITED STATES (1500-1815).

A study of selected topics designed to illustrate the evolution of modern Western society. The emphasis throughout is on the thought patterns underlying institutional developments.

Mr. Borg.

### F10b. HISTORY OF EUROPE AND THE UNITED STATES (1815-Present).

Mr. Campbell, Mr. Savage.

### F11b. PROSEMINAR: THE ANCIENT ORIGINS OF WESTERN CULTURE.

Reading and discussion will concentrate on the Greek, Judeo-Christian and Roman elements of Western culture. Analytical techniques from the social sciences will be employed as an aid in developing an historical understanding.

Mr. Savage.

### 12. HISTORY OF ENGLAND.

Not offered, 1970-71.

A study of selected problems in the historical development of English culture from the early medieval period.

Mr. Savage.

### F14a. HISTORY OF ASIA (to 1800).

Not offered, 1970-71.

A survey of Asian history to the present, emphasizing India, China, and Japan.

Mr. Barrow.

### F14b. HISTORY OF ASIA (1800-Present).

Mr. Barrow.

### F17a. PROSEMINAR: ORIGINS OF CONTEMPORARY AMERICAN THEMES.

Readings and discussion dealing with issues of historical interpretation which have significance in connection with contemporary social and political problems.

Mr. Campbell.

### F19a. TRADITIONAL AFRICA.

Not offered, 1970-71.

The development of several pre-European civilizations in Africa, including those of Kush, the Sudanic Kingdoms, the Zanj, Zimbabwe, and Nok-Ife-Benin. An anthropological approach will be used to explore traditional African society and values.

Mr. Ford.

### F19b. MODERN AFRICA.

Not offered, 1970-71.

A study of differing views on European penetration of Africa, including an analysis of slavery and the slave trade, exploration, the missionary movement, imperialism, and independence, and concentrating on southern Africa and areas of English influence.

Mr. Ford.

### 141a. PROSEMINAR: THE AMERICAN CHARACTER.

Not offered, 1970-71.

A study of the problem of national character and its historical validity.

Mr. Barrow.

### 124a. ENGLAND'S "OLD REGIME".

Not offered, 1970-71.

The structure and possible causes of the peculiarities of English state and society compared with continental Europe's from the late Middle Ages to about 1800.

Mr. Lucas.



**125a. BRITAIN IN THE 19TH AND 20TH CENTURIES.**

The development of British culture and society in the industrial age.

Mr. Savage.

**Economics 150a. ECONOMIC HISTORY OF THE UNITED STATES.**

An analysis of the development of the American economy. Prerequisite: Economics 11.

Three semester hours, counts as a history course within the major.

Mr. Gummerson.

**208b. PROSEMINAR: TOTALITARIANISM.**

Not offered, 1970-71.

A study of the nature of totalitarianism and of the origins, ideology, and operation of the German Nazi regime.

Mr. Borg.

**210a. "OLD EUROPE" AND THE *ANCIEN RÉGIME*, 1550-1789.**

A study of the nature and impact of absolutism, mercantilism, early capitalism, and modern science upon "Old Europe" and the system of European states before the French Revolution.

Mr. Lucas.

**210b. THE FRENCH REVOLUTION AND THE COMPARATIVE STUDY OF REVOLUTIONS.**

An analysis of old and new ideas of revolution, including ritual, resistance, reactionary restoration vs. innovation; of the "democratic" revolution; of the psychology, sociology, and social psychology of revolutionary behavior; and of the relevance of the French Revolution to 20th-century issues.

Mr. Lucas.

**211b. TWENTIETH-CENTURY EUROPE.**

Not offered, 1970-71.

Mr. Borg.

**215b. TWENTIETH-CENTURY GERMANY.**

An examination of the convulsive course of German political thought.

Mr. Borg.

**217a. PROSEMINAR: WORLD WAR I AND EUROPEAN SOCIETY.**

An examination through primary and secondary sources of the consequences of the war for European politics, thought, values, and social organization.

Mr. Savage.

**218a. 18th-CENTURY EUROPEAN INTELLECTUAL HISTORY**

The "Enlightenment" and its critics: the scientific revolution, philosophical reformism, and early conservative romanticism. The emphasis is on methods of intellectual history as focused upon rival perceptions of man's psychological and social nature, history, and aesthetic and religious sensibilities.

Mr. Lucas.

**218b. 19th-CENTURY EUROPEAN INTELLECTUAL HISTORY.**

The elaboration of the "Enlightenment" by its heirs and critics. The emphasis remains the same as in 218a, but the focus shifts to an analysis of political and economic liberalism, social Darwinism, "utopian" and "scientific" socialism, positivism, nationalism and racism, old and new conservatism, and the reassessment of the values and progress of European civilization.

Mr. Lucas.

**221b. PROSEMINAR: VICTORIAN BRITAIN.**

Not offered, 1970-71.

Problems in the development of middle-class culture.

Mr. Savage.

222a. PROSEMINAR: BRITAIN IN THE TWENTIETH CENTURY. Not offered, 1970-71.  
An examination of the impact of economic change, mass communication, and war upon British society and culture. Mr. Savage.

231a. THE EXPANSION OF EUROPE, 1400-1600. Not offered, 1970-71.  
A survey of the origins and consequences of European expansion in its formative stages, with particular emphasis on English developments. Mr. Barrow.

232b. ENGLAND IN AMERICA, 1600-1700.  
An analysis of the process and consequences of the transplantation of Englishmen and English traditions to the new American environment. Mr. Barrow.

233a. ERA OF THE AMERICAN REVOLUTION.  
An analysis of American society in the pre-Revolutionary period with particular emphasis upon the ideological and political developments that led to the War of Independence. Mr. Billias.

233b. FORMATION OF THE NEW NATION.  
An analysis of the American revolutionary experience, political theories in the making of the Federal Constitution, problems of the new government, and developments in the American political tradition through the Jeffersonian era. Mr. Billias.

235b. THE UNITED STATES IN THE 20TH CENTURY. Not offered, 1970-71.  
An analysis of the transformation of America into a modern society and of the tensions and problems of adjustment in this process. Miss Hareven.

238b. THE NEGRO IN AMERICAN HISTORY.

241a. PROSEMINAR: HISTORY OF AMERICAN HIGHER EDUCATION. Not offered, 1970-71.  
The role of higher education in American life from 1636 to the present, with emphasis on the rise and character of the American university. Mr. Koelsch.

243a. AMERICAN DIPLOMATIC HISTORY, 1778-1941. Not offered, 1970-71.  
Mr. Hayden.

244b. PROSEMINAR: CHILDHOOD, YOUTH, AND FAMILY IN AMERICAN HISTORY.  
An interdisciplinary study of the changing attitudes of society toward childhood and the family, the varieties of family experience, and the problems of youth in historical perspective. Miss Hareven.

245b. HISTORICAL GEOGRAPHY OF THE EASTERN UNITED STATES. Not offered, 1970-71.  
Studies in settlement and resource utilization on the eastern seaboard before 1860. Mr. Koelsch, Mr. Peet.

246a. THE AMERICAN CITY.  
Major themes in the social and cultural development of American cities from colonial origins to the present. Focus on the process of urbanization. Comparison with European cities.

246b. THE AMERICAN CITY. Not offered, 1970-71.  
Miss Hareven.

- 248b. PROSEMINAR: ETHNICITY AND RACE IN AMERICAN HISTORY. Not offered, 1970-71.  
A comparative study. Miss Hareven.
- 250a. AMERICAN THOUGHT AND CULTURE: THE GREAT AWAKENING THROUGH THE CIVIL WAR.  
Emphasis on the shaping effects of the nineteenth-century experience on American ways of thinking. Mr. Koelsch.
- 251a. AMERICAN THOUGHT AND CULTURE: CIVIL WAR TO THE PRESENT. Not offered, 1970-71.  
Mr. Campbell.
- 252b. HISTORICAL GEOGRAPHY: METHODS, TECHNIQUES AND SOURCES. Mr. Koelsch, Mr. Bowden.
- 254a. AMERICAN CONSTITUTIONAL HISTORY.  
The origins and development of the American constitutional system with special reference to the role of the Supreme Court and its decisions. Mr. Campbell.
- 254b. AMERICAN CONSTITUTIONAL HISTORY. Mr. Campbell.
- 274b. THE MODERN FAR EAST. Not offered, 1970-71.  
Primarily international relations in the region since 1895. Mr. Hayden.
- 281a. RUSSIA, 1825-1917.  
An outline of Russian development from the early nineteenth century to the collapse of the tsarist regime. The emphasis lies on political history with occasional exploration of literary and economic history as well. Mr. Von Laue.
- 282b. SOVIET RUSSIA, 1917-1960.  
An outline of Soviet development from the Bolshevik revolution to the present, with special emphasis on the formation of the Soviet regime and the rise and fall of Stalinism. Mr. Von Laue.
- 290a. PROSEMINAR: PERSPECTIVES OF WESTERNIZATION, 1890-1960.  
A discussion of the scholarly literature on modernization and westernization, with detailed analysis of select issues. Mr. Von Laue.
- 295b. PROSEMINAR: GHANA, A CASE HISTORY OF WESTERNIZATION.  
An analysis of the western penetration of the Gold Coast and the emergence of the state of Ghana, to the fall of Nkrumah. Mr. Von Laue.
- 296a. PROSEMINAR: PRE-EUROPEAN AFRICA.  
A consideration of economic, social, and political developments in Africa prior to the arrival of Europeans. Prerequisite: F19a, F19b, or equivalent. Mr. Ford.
- 297b. PROSEMINAR: MODERN AFRICA. Not offered, 1970-71.  
Focus on the changes which European policies and values have created in Africa. Prerequisite: F19a, F19b, or equivalent. Mr. Ford.
88. SPECIAL PROJECTS.  
Undergraduates, normally juniors and seniors, may construct a reading or research course with an instructor of their choosing. The consent of the instructor *must* be obtained in advance. Variable credit.



- 300b. THE DEPARTMENTAL SEMINAR. Not offered, 1970-71.  
The philosophy of history and the history of the idea of history. Mr. Borg, Mr. Beck.
303. SOCIAL SCIENCE SEMINAR. TTT Staff.
305. CURRICULUM DEVELOPMENT IN THE TEACHING OF SOCIAL STUDIES TTT Staff.
- 328a. SEMINAR: ORIGIN AND NATURE OF DEMOCRACY IN PRE-REVOLUTIONARY AMERICA. Mr. Barrow.
- 330b. SEMINAR: RISE OF POLITICAL PARTIES IN THE EARLY AMERICAN REPUBLIC.  
Ideology, Aims, and Practices of the Federalists and Jeffersonian Republicans. Mr. Billias.
- 331b. SEMINAR: THE MIDDLE PERIOD OF AMERICAN HISTORY, 1815-1877.  
Mr. Koelsch.
334. INTRODUCTION TO RESEARCH IN AMERICAN COLONIAL HISTORY. Not offered, 1970-71.  
Historiography of leading American colonial historians from colonial times to the present combined with an examination of bibliographical guides to the field.  
Mr. Billias, Mr. McCorison.
- 337a. SEMINAR: THE PROGRESSIVE ERA. Not offered, 1970-71.  
Mr. Campbell.
- 338a. SEMINAR: AMERICAN SOCIAL HISTORY. Not offered, 1970-71.  
Focus on the problem of social change and continuity in American society. Emphasis on the city and the family. Miss Hareven.
- 339a. SEMINAR: AMERICAN URBAN HISTORY.  
The focus falls on the American adjustment to the urban, industrial experience. Research will utilize original sources in Worcester and other New England towns. Miss Hareven.
- 342a. COLLOQUIUM: THE LITERATURE OF AMERICAN HISTORY (to 1815).  
Mr. Billias.
- 343a. COLLOQUIUM: THE LITERATURE OF AMERICAN HISTORY (since 1815).  
Mr. Koelsch.
381. STUDIES IN MEDIEVAL EUROPEAN HISTORY. Mr. Barrow, Mr. Savage.
382. STUDIES IN EARLY MODERN EUROPEAN HISTORY. Mr. Lucas.
383. STUDIES IN MODERN EUROPEAN HISTORY. Mr. Borg, Mr. Von Laue.
384. STUDIES IN MODERN BRITISH HISTORY. Mr. Savage.
385. STUDIES IN RUSSIAN HISTORY. Mr. Von Laue.
388. STUDIES IN AFRICAN HISTORY. Mr. Ford.
390. STUDIES IN EARLY AMERICAN HISTORY. Mr. Barrow.
391. STUDIES IN 18TH-CENTURY AMERICAN HISTORY. Mr. Billias.

392. STUDIES IN 19TH-CENTURY AMERICAN HISTORY. Mr. Koelsch.
394. STUDIES IN RECENT AMERICAN HISTORY. Miss Hareven, Mr. Campbell.
395. STUDIES IN AMERICAN INTELLECTUAL HISTORY. Mr. Beck.
397. STUDIES IN DIPLOMATIC HISTORY AND INTERNATIONAL RELATIONS. Mr. Hayden.
398. STUDIES IN COMPARATIVE HISTORY. Mr. Von Laue.

## Linguistics

ENGLISH 198. INTRODUCTION TO LINGUISTICS. Fall, 1970.

ENGLISH 199. COMPARATIVE AND HISTORICAL LINGUISTICS. Spring, 1971.

*Courses in Linguistics Offered at the College of the Holy Cross and Open to Students from Clark University:* English 198 is devoted to the theory and methodology of descriptive linguistics. The course deals with the nature and function of language, the relation between speech and writing, phonology, morphology, syntax, lexicology, the socio-cultural setting of language, the contact of linguistic systems, and the problems of "correctness." English 199 examines the theory and methodology of comparative and historical linguistics. It focuses on linguistic geography, linguistic borrowing, the causes of linguistic change, the comparative method and reconstruction, and problems in analyzing languages with and without a literary tradition. In both courses, emphasis is placed upon the dynamics of systems analysis.

*Three semester hours each semester.*

Mr. Macris.

115. MAN AND LANGUAGE.

Not offered, 1970-71.

An introduction to the analysis of the nature and function of human language and its role in the life of individuals and societies. The approach is interdisciplinary, with attention to the points of view of philology, contemporary linguistics, anthropology, psychology and philosophy. The lectures focus on such questions as: What is language? What is the relation between language and thought? To what extent does our language determine how we perceive the world? Why and how do languages change? What other functions does language serve besides communication? Why do we not have a world language? How have linguists achieved an objective, scientific analysis of linguistic systems? What are the limitations of such a science?

The course is designed for the general student who wishes to know more about the nature of the uniquely and universally human institution of language, and for the student or teacher of English or foreign languages who is interested in the light which linguistic science can throw upon the relations between his field and other areas of life and knowledge.

First semester: lectures. Second semester: a seminar in which the members of the group report in depth on problems of their choosing.

Consent of the instructor required. Offered in alternate years.

*Three semester hours each semester.*

Mr. Reid

Computer Science 201. COMPUTATIONAL LINGUISTICS.

See description under computer science.

Mr. Chan.

Psychology 228b. PSYCHOLOGY OF LANGUAGE.

See description under psychology.

Not offered, 1970-71.

Mr. Kaplan.

English 250. HISTORY OF THE ENGLISH LANGUAGE.

See description under English.

Mr. Macris.

English 260b. SEMINAR: MODERN AMERICAN ENGLISH.

See description under English.

Mr. Macris.

English 261b. SEMINAR: LINGUISTIC APPROACHES TO LITERATURE. Not offered 1970-71.

See description under English.

Mr. Macris.

## Mathematics

### DEPARTMENT FACULTY

John F. Kennison, Ph.D., *Associate Professor of Mathematics, Acting Department Chairman*

John M. Danskin, Ph.D., *Professor of Mathematics\**

Zalman Rubinstein, Ph.D., *Professor of Mathematics\**

Norman Sondak, Dr. of Eng'g., *Professor (Affiliate) of Mathematics*

Bhama Srinivasan, Ph.D., *Associate Professor of Mathematics*

John S. Stubbe, Ph.D., *Associate Professor of Mathematics*

Stephen Baron, Ph.D., *Assistant Professor of Mathematics*

Robert W. Kilmoyer, Jr., Ph.D., *Assistant Professor of Mathematics*

Stanley J. Poreda, Jr., Ph.D., *Assistant Professor of Mathematics*

Herbert Silverman, Ph.D., *Assistant Professor of Mathematics*

George S. Shapiro, A.M., *Instructor in Mathematics*

\*On leave of absence, 1970-71

### UNDERGRADUATE PROGRAM

The Department offers courses leading to a major in mathematics, courses necessary for the study of physical and certain social sciences, and courses for the student wishing to learn the fundamental concepts of mathematics.

The mathematics major requires five year-courses in mathematics, excluding Mathematics 11, and including one year-course on the 200 level. In addition, two year-courses must be taken in one of the following areas; biology, chemistry, computer science, economics, geography, geology, philosophy, physics, psychology, sociology. A student interested in pure mathematics should normally take Mathematics 12 in the freshman year (or have advanced placement), Mathematics 113 and 114 in the sophomore year, Mathematics 214 or 215 (or both) in the junior year, and other elective courses of his own choosing.



A student interested in applied mathematics should normally take Mathematics 12 in the freshman year (or have advanced placement), Mathematics 13 or 113 (or both) in the sophomore year. In the junior and senior year the student should take courses from the following areas: Applied Mathematics, Probability and Statistics, Computers and Programming, and additional elective courses in mathematics.

The department encourages all majors in the department to seek continuous advice from the chairman and faculty with regard to their mathematics program.

Students showing particular promise in mathematics in their first two years are encouraged to enroll in the Honors program in Mathematics during their junior and senior years under the supervision of a faculty member.

At least 36 semester hours of a major's program must be selected from other than the following fields or courses: All Group A courses, and certain courses in computer science, economics, geography, and psychology which depend heavily on mathematics. In each case, please consult with the department.

The course in Numerical Analysis includes work with the computer.

## GRADUATE PROGRAM

The department offers courses leading to the degrees of Master of Arts and Doctor of Philosophy.

The requirements for the M.A.\* are as follows: (1) four courses on the 300 level, except that, with the consent of the department, a student may substitute two courses below the 300 level in place of one beyond; (2) a Master's thesis; and (3) an oral examination.

A student working toward the Ph.D. degree and electing to omit the M.A. thesis and M.A. oral examination will be recommended for the M.A. degree upon successful completion of the Ph.D. Preliminary Examination.

The requirements for the Ph.D.\*, in addition to the general requirements of the Graduate School, are as follows: There are four "tracks" by which a student may be recommended for admission to Ph.D. candidacy: (1) Written examination; (2) Oral examination; (3) Special project; (4) Waiver (in extraordinary cases). The decision as to which track shall apply is made by the advisor in consultation with the student. The advisor will submit the choice of track to the department for final approval.

In all cases except the waiver, a committee of at least three will be appointed by the chairman. If the examination or project is satisfactory, the committee will advise the department, which will make the recommendation to the Graduate School.

The language requirement will be considered to have been fulfilled if the candidate can demonstrate sufficient linguistic ability to carry on effective research in his field. The department's decision will depend heavily upon the recommendation of the candidate's advisor.

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All Candidates for the M.A. and Ph.D. degrees in Mathematics will be required to serve as teaching assistants or as assistants in the Computing Center as part of the work for their degrees.

## COURSES

### F11a. INTRODUCTION TO MATHEMATICS.

Intended for the general student, the course treats topics in the foundations of mathematics and its role in today's world.

*Three semester hours.*

Staff.

F11b.

College algebra, trigonometry, and other basic topics are reviewed thoroughly.  
*Three semester hours.*

Staff.

F12. CALCULUS.

Introduction to differential and integral calculus of one variable; sequences and series; essential for further study in mathematics as well as for the study of applications in the natural and social sciences.  
*Four semester hours each semester.*

Mr. Baron, Mr. Shapiro, and Staff.

13. INTERMEDIATE APPLIED CALCULUS.

This course designed particularly for students interested in applied mathematics deals with further development (with a view of applications) of various areas in calculus such as differentiation, integration, infinite series, differential equations, analytic functions, and Fourier series. Prerequisite: Mathematics 12.  
*Four semester hours each semester.*

Staff.

100. UNDERGRADUATE SEMINAR IN MATHEMATICAL MODELS. Not offered, 1970-71.

This is a seminar type course in which elementary examples of mathematical models are examined. Each student presents a model based on his own mathematical interpretation of any social, political, game-type or other situation. Means of applying mathematical games and models to the social and physical sciences are discussed. Knowledge of Set Theory desirable. Signature required. Not normally open to freshmen.  
*Two semester hours.*

Mr. Kennison.

113. INTRODUCTION TO ALGEBRAIC CONCEPTS.

An introduction to fundamental concepts such as: sets, mappings, equivalence relations, rings, linear algebra, vector spaces, linear transformations, eigenvalues, eigenvectors, and inner product spaces. Prerequisite: Mathematics 12 or consent of instructor.  
*Three semester hours each semester.*

Mrs. Srinivasan.

114. INTRODUCTION TO ANALYSIS.

The real number system, sequences, limits of functions, convergence and uniform convergence of sequences of functions, continuity, uniform continuity, differentiability and elements of point-set topology. Prerequisite: A or B in Mathematics 12, or consent of the instructor.  
*Three semester hours each semester.*

Mr. Silverman.

210. MATHEMATICAL STATISTICS.

Not offered, 1970-71.

Elements of probability theory, frequency distribution test of significance, large and small sampling, analysis of variance. Prerequisite: Mathematics 13.  
*Four semester hours each semester.*

Mr. Stubbe.

212a. NUMERICAL ANALYSIS.

Not offered, 1970-71.

Calculus of finite differences, introduction to the theory of interpolation, error analysis, direct and iterative methods for solving equations and systems of equations. Prerequisite: Mathematics 13.  
*Four semester hours.*

Mr. Stubbe.

**214. MODERN ANALYSIS.**

Topological, metric and linear methods are studied and used as a basis for a general approach to differentiation, integration and related topics in analysis. Prerequisites: Mathematics 114 or consent of the instructor.

*Four semester hours each semester.*

Mr. Shapiro.

**215. MODERN ALGEBRA.**

Introduction to the theory of groups, rings, integral domain, fields, and related topics. Prerequisite: Mathematics 113 or consent of the instructor.

*Four semester hours each semester.*

Mr. Kilmoyer.

**216. PROBABILITY.**

A mathematical course developing the foundations of probability with particular emphasis on applications to social and physical sciences. Prerequisite: consent of the instructor.

*Three semester hours each semester.*

Mr. Stubbe.

**220. APPLIED MATHEMATICS.**

**Not offered, 1970-71.**

Ordinary and partial differential equations and their applications, vector analysis, infinite series, line and surface integrals, Bessel functions, Legendre polynomials and Fourier series, introduction to functions of a complex variable. Prerequisite: Mathematics 13. Offered in alternate years.

*Four semester hours each semester.*

Mr. Rubinstein.

**221b. CALCULUS OF VARIATIONS.**

Euler's equations, canonical forms, classical examples, isoparametric problems, variational principles, Hamilton-Jacobi theory. Corequisite: Mathematics 13.

*Three semester hours.*

Mr. Stubbe.

**290. TOPICS IN ANALYSIS.**

Content will be changed from year to year.

*Three semester hours each semester.*

Staff.

**291. TOPICS IN ALGEBRA.**

Content will be changed from year to year.

*Three semester hours each semester.*

Staff.

**292. TOPICS IN TOPOLOGY.**

Content will be changed from year to year.

*Three semester hours each semester.*

Staff.

**298. HONORS I.**

*Three semester hours each semester.*

Staff.

**299. HONORS II.**

*Three semester hours each semester.*

Staff.

**300. SETS AND TOPOLOGY.**

The foundations of set theory and the relationship of various fundamental axioms, such as Zorn's lemma and the Axiom of Choice. Point-set topology as far as the Hahn-Mazurkiewicz Theorem.

*Three semester hours each semester.*

Mr. Kennison and Staff.



**316. FUNCTIONS OF A COMPLEX VARIABLE.**

Analytic functions, line integrals, conformal mapping. Riemann surfaces. Prerequisite: Mathematics 214 or consent of the instructor. Offered in alternate years.

*Three semester hours each semester.*

Mr. Poreda.

**318. FUNCTIONS OF A REAL VARIABLE.**

Foundations of the real number system, algebra of sets, transfinite arithmetic, metric spaces, topological spaces, sequences and series, measure theory, differentiation and integration and introduction to category theory. Prerequisite: Mathematics 214; corequisite: Mathematics 300.

*Three semester hours each semester.*

Mr. Kennison and Staff.

**321. ALGEBRAIC TOPOLOGY.**

Introduction to algebraic topology including fibrations and coverings, homotopy and homology. The relation with category theory will be emphasized. Prerequisites: Mathematics 215 and 318 or consent of the instructor.

*Three semester hours each semester.*

Mr. Baron.

**323. UNIFORM SPACES.**

Not offered, 1970-71.

Elementary theory, function spaces and the exponential law, mappings into polyhedra, compactifications, fine spaces, dimension theory. Prerequisite: Mathematics 318 or consent of the instructor.

*Three semester hours each semester.*

**325. ADVANCED MODERN ALGEBRA.**

Galois theory, group theory, Wedderburn structure theorems for rings and linear algebras, introduction to algebraic number fields. Prerequisite: Mathematics 215; corequisite: Mathematics 300.

*Three semester hours each semester.*

Mrs. Srinivasan.

**326. SELECTED TOPICS IN COMPLEX ANALYSIS.**

Not offered, 1970-71.

Topics selected from the theory of univalent and multivalent functions, geometric function theory, zeros of polynomials and extremal polynomials. Prerequisites: Mathematics 316 or consent of the instructor.

*Three semester hours.*

**330. MASTER'S THESIS.**

Staff.

**333. TOPOLOGICAL FUNCTION SPACES.**

Not offered, 1970-71.

Various topologies for sets of functions are studied and their properties determined. Emphasis on the exponential laws. Ascoli-Arzelà theorems, and applications to point-set topology. Prerequisites: Mathematics 318 or consent of the instructor.

*Three semester hours each semester.*

**335. SELECTED TOPICS IN ALGEBRA.**

Not offered, 1970-71.

Prerequisites: Mathematics 325 or consent of the instructor.

*Three semester hours.*

341. DIFFERENTIAL EQUATIONS. Not offered, 1970-71.  
 Ordinary differential equations, theory and techniques of solutions. Partial differential equations. Fourier transform, distributions and their applications.  
*Three semester hours each semester.* Mr. Rubinstein.
358. CATEGORY THEORY. Not offered, 1970-71.  
*Three semester hours each semester.* Mr. Baron.
376. REPRESENTATION THEORY OF FINITE GROUPS.  
 Prerequisite: Mathematics 325 and consent of the instructor.  
*Three semester hours each semester.* Mr. Kilmoyer.
381. SEMINAR IN COMPLEX VARIABLE.  
*Three semester hours each semester.* Mr. Silverman.
382. SEMINAR IN ABSTRACT ANALYSIS AND POINT-SET TOPOLOGY.  
*Three semester hours each semester.* Staff.
383. SEMINAR IN ALGEBRA.  
*Three semester hours each semester.* Staff.
384. SEMINAR IN CATEGORY THEORY.  
*Three semester hours each semester.* Staff.
390. READINGS IN MATHEMATICS.  
 Reading of the mathematical literature related to the student's research program.  
*Three semester hours each semester.* Staff.
391. RESEARCH IN MATHEMATICS.  
 Direction of the Ph.D. dissertation.  
*Three semester hours each semester.* Staff.

## Music

### DEPARTMENT FACULTY

Relly Raffman, A.M., *George N. and Selma U. Jeppson, Professor of Music, Department Chairman\**

Wesley M. Fuller, M. Mu., *Associate Professor of Music*

Gerald R. Castonguay, Ph.D., *Assistant Professor of Music*

Susan Clickner, B. Mu., *Affiliate in Voice*

Evelyn Fuller, M. Mu., *Affiliate in Piano*

Raymond Toubman, M. Mu., *Affiliate in Oboe*

William Wrzesian, M. Mu., *Affiliate in Clarinet*

\*On leave of absence first semester, 1970-71.

## UNDERGRADUATE PROGRAM

The department offers courses designed to teach students how to listen to music intelligently, to develop a comprehension of music on its own terms and to acquaint students with representative works from various periods of music history.

To be admitted to the music major, a student must demonstrate through a written examination a knowledge of the fundamentals of music, and he must demonstrate no later than the beginning of the junior year the ability to read and perform simple keyboard works.

The music major includes the following courses:

Theory: 121a and b (to be taken in the Freshman year). 122a, 123b, 124a and 125b.

MUSIC HISTORY: 12a and 112a; 13b and 113b; 14a and 114a; 15 and 115; 16b or 17b.

Associated studies: a one-semester course in either art or esthetics.

In the senior year, students who wish to emphasize composition should elect Music 118; students who wish to emphasize music history should elect Music 128. In addition, all majors must satisfactorily complete 36 semester hours outside of Philosophy 13b (Esthetics), courses in fine arts, courses in literature and courses in European history.

Individual instruction in piano, oboe, clarinet, violin and voice will be arranged if the demand in any given area is sufficient. Payment for lessons is made by the semester.

## COURSES

### F10a. INTRODUCTION TO MUSIC.

Designed for the non-major, this course is a prerequisite for entrance into Music 12 through 18, inclusive. No credit toward the major allowed. Open to freshmen. Repeated second semester.

*Three semester hours.*

Staff.

### 120a. INTRODUCTION TO MUSIC.

Special topics in music pedagogy. For majors only.

*One semester hour.*

Staff.

### F121a. FUNDAMENTALS OF MUSIC.

Notation, ear-training, sight-singing and elementary melodic and harmonic organization.

*Three semester hours.*

Mr. Raffman.

### F121b. PRIMARY THEORY

Open to freshmen. Prerequisite: 121a or consent of instructor.

*Three semester hours.*

Mr. Raffman.

### 12a. MEDIEVAL AND RENAISSANCE PERIODS.

A survey of music before 1600. Prerequisite: 10a. Offered in alternate years.

*Three semester hours.*

Mr. Castonguay.



**112a. SPECIAL TOPICS IN MEDIEVAL AND RENAISSANCE MUSIC.**

Independent study. Required of all music majors, but open to anyone concurrently enrolled in 12a.

*One semester hour.*

Staff.

**122a. THEORY: MODAL COUNTERPOINT.**

Offered in alternate years. Prerequisite: 121a.

*Three semester hours.*

Mr. Fuller.

**F13b. BAROQUE AND CLASSICAL PERIODS.**

A survey of music from 1600 to 1800. Offered in alternate years.

*Three semester hours.*

Mr. Castonguay.

**113b. SPECIAL TOPICS IN BAROQUE AND CLASSICAL MUSIC.**

Independent study. Required of all Music Majors, but open to anyone concurrently enrolled in 13b.

*One semester hour.*

Staff.

**123b. THEORY: 18TH CENTURY COUNTERPOINT.**

Prerequisite: 121a. Offered in alternate years.

*Three semester hours.*

Mr. Raffman.

**14a. NINETEENTH CENTURY MUSIC.**

Not offered, 1970-71.

A survey of the Romantic Period. Offered in alternate years. Prerequisite: 10a.

*Three semester hours.*

Mr. Castonguay.

**114a. SPECIAL TOPICS IN 19TH CENTURY MUSIC.**

Not offered, 1970-71.

Independent study. Required of all Music Majors, but open to anyone concurrently enrolled in 14a.

*One semester hour.*

Staff.

**124a. THEORY: 19TH CENTURY PRACTICE.**

Not offered, 1970-71.

Prerequisite: 121a. Offered in alternate years.

*Three semester hours.*

Mr. Raffman.

**F15. TWENTIETH CENTURY MUSIC.**

Not offered, 1970-71.

A survey of music from Debussy to the electronic synthesizer. During the latter stages of the course, laboratory work in the electronic studio will be arranged. Prerequisite: 10a or 121a. Divisible course.

*Three semester hours each semester.*

Mr. Raffman and Mr. Fuller.

115. SPECIAL TOPICS IN 20TH CENTURY MUSIC. Not offered, 1970-71.  
Independent study. Required of all music majors, but open to anyone concurrently enrolled in 15b.

*One semester hour each semester.* Staff.

125b. THEORY: 20TH CENTURY PRACTICE. Not offered, 1970-71.

Prerequisite: 121a and 124a. Offered in alternate years.  
*Three semester hours.* Mr. Raffman and Mr. Fuller.

F16b. CHORAL MUSIC. Not offered, 1970-71.

Selected choral compositions from all periods of music history will be analyzed with score and recording. Because the study of performance problems is of key importance, a number of the works will be performed by the class. Prerequisite: 10a, or permission of the instructor. Offered in alternate years.

*Three semester hours.* Mr. Fuller.

F17b. OPERA.

With the help of translated librettos, recordings and selected readings, a study is made of a group of operas representing all periods of music history, with emphasis on the many solutions to the combination of music and drama. Prerequisite: 10a. Offered in alternate years.

*Three semester hours.* Mr. Fuller.

18. PRIVATE INSTRUCTION IN INSTRUMENTS AND VOICE.

Academic credit may be arranged for students majoring in music according to the particular program of instruction undertaken and with the consent of the department. Offered in 1970-71: piano, oboe, clarinet, violin and voice. Staff.

F19b. INTRODUCTION TO NON-WESTERN MUSIC. Not offered, 1970-71.

The music of cultures not of the Western European tradition are studied. India, Japan, China, Africa (including Islamic music) will be featured, along with several smaller countries. Emphasis is placed on the role that music plays within the culture, whether religious, social, political, supernatural, work, play, etc. Each student will, early in the course, select a topic for research and carry that research on throughout the semester. Offered in alternate years. Prerequisite: Music 10, or Music 121a. For Consortium: A Music History or Theory Course. Mr. Fuller.

118. SENIOR TUTORIAL IN MUSIC HISTORY.

*Three semester hours each semester.* Staff.

128. SENIOR TUTORIAL IN COMPOSITION.

*Three semester hours each semester.* Staff.

# Philosophy

## DEPARTMENT FACULTY

Robert N. Beck, Ph.D., *Professor of Philosophy, Chairman*

Jefferson A. White, Ph.D., *Associate Professor of Philosophy\**

Gilbert S. Markle, Ph.D., *Assistant Professor of Philosophy*

Gary E. Overvold, Ph.D., *Assistant Professor of Philosophy*

Walter E. Wright, M.A., *Assistant Professor of Philosophy*

\*On leave of absence, second semester, 1970-71.

## UNDERGRADUATE PROGRAM

The department offers courses to students who wish to broaden their perspective and trace relations among the various fields of knowledge and to students who wish to major in philosophy.

The major consists of at least 24 semester hours in philosophy and 18 additional hours in related fields. The latter are determined according to the student's special interest. Course programs for majors require approval of the departmental chairman.

The outside field requirement in philosophy of 36 semester hours requires specific course determination. Courses credited toward this requirement must be individually approved by the departmental chairman as part of the major's program.

## COURSES

### F11a. LOGIC AND SCIENTIFIC METHOD.

Principles of valid reasoning and inductive methods and their application to problems of the natural and social sciences. Consideration of the relations between logic and problems of value.

*Three semester hours.*

Mr. Beck, Mr. Overvold.

### F12a. PROBLEMS OF PHILOSOPHY.

Nature and method of philosophy. Application of philosophical method to contemporary personal and social problems. Detailed analysis of some typical problems in various fields of philosophy.

*Three semester hours.*

Mr. Markle.

### F12b. PROBLEMS OF PHILOSOPHY.

Mr. Beck.

*Philosophy 120 series is organized in four semester-courses, I, II, III and IV*

### F121b. HISTORY OF ANCIENT PHILOSOPHY I.

Movements of philosophical thought from their origins with the early Greeks through Plato and Aristotle. Prerequisite: three semester hours in philosophy.

*Three semester hours.*

Mr. White.

### 122b. HELLENISTIC AND MEDIEVAL PHILOSOPHY II.

Not offered, 1970-71.

Developments in Hellenistic and medieval philosophy from Epicureanism, Stoicism, Skepticism, and Neo-Platonism through Augustine, Aquinas, and William of Occam to the attack on scholasticism. Prerequisite: Philosophy 121 or F12b.

*Three semester hours.*

Mr. White.



**123a. HISTORY OF MODERN PHILOSOPHY III.**

Not offered, 1970-71.

Major thinkers and philosophical movements from the beginnings of the modern period in Descartes through Kant. The two great trends in modern thought — Continental Rationalism and British Empiricism — will be examined in particular regard to their implications for, and effects upon, our contemporary view of the world. Prerequisite: three semester hours in philosophy or History 10.

*Three semester hours.*

Mr. Overvold.

**123b. HISTORY OF MODERN PHILOSOPHY III.**

Mr. Markle.

**124b. HISTORY OF RECENT PHILOSOPHY IV.**

Recent developments in philosophy, with emphasis upon analytical philosophy (Positivism) on the one hand, and continental philosophy (Existentialism) on the other. Prerequisite: Philosophy 123a or 123b.

*Three semester hours.*

Mr. Overvold.

**130a. SARTRE.**

Ontology as a ground for life style. Prerequisite: six semester hours in philosophy, or permission of instructor.

*Three semester hours.*

Mr. Markle.

**13a. PROBLEMS OF ETHICS.**

Consideration of important ethical theories to acquaint the student with problems and scope of ethics and to aid him in the formulation of an ethical outlook. Open to juniors and seniors.

*Three semester hours.*

Mr. Beck.

**13b. SOCIAL PHILOSOPHY.**

Principles underlying social structure and functions. Examination of the goals, purposes, norms and ideals of social process, and the relation of that process to the individual good. Open to juniors and seniors.

*Three semester hours.*

Mr. Beck.

**14a. KIERKEGAARD AND NIETZSCHE.**

Investigation of the roots of contemporary existential thought in the nineteenth century through the analysis of major writings by Soren Kierkegaard and Friedrich Nietzsche. Emphasis on their doctrines of knowledge, existence and man. Open to juniors and seniors. Prerequisite: three semester hours in philosophy.

*Three semester hours.*

Mr. Wright.

**14b. NINETEENTH AND EARLY TWENTIETH CENTURY GERMAN PHILOSOPHY.**

Trends in philosophy during this period considered as a background for understanding recent philosophy. Philosophers to be studied include Fichte, Hegel, Schopenhauer, Nietzsche, Marx, Engels and Comte. Prerequisite: Philosophy 123b.

*Three semester hours.*

Mr. Wright.

**15a. PHILOSOPHY OF RELIGION.**

The nature of religion as revealed by the examination of representative forms of religious experience. Emphasis is placed on the effect of contemporary knowledge on the understanding of the religious dimension. Open to juniors and seniors. Prerequisite: three semester hours in philosophy.

*Three semester hours.*

Mr. Wright.

**16a. ESTHETICS.**

**Not offered, 1970-71.**

The nature of art, the characteristics of esthetic experience, and the relation of art to the human enterprise as a whole. Special reference is made to representative figures in contemporary philosophy such as Santayana, Veron, Dewey, Weitz, Macdonald, Bosanquet, Langer, Hume, and T. H. Greene. Open to juniors and seniors. Prerequisite: three semester hours in philosophy.

*Three semester hours.*

Mr. White.

**16b. METAPHYSICS.**

**Not offered, 1970-71.**

Clarification of the nature of metaphysical thinking and views of representative contemporary philosophers on the nature of space, time, causality, matter, force, self-identity, mind, body, and freedom. Open to juniors and seniors. Prerequisite: Philosophy 121 and 123.

*Three semester hours.*

Mr. White.

**17a. PHILOSOPHY OF SCIENCE I.**

An introduction to certain traditional problems of epistemology and metaphysics, cast into the terms and context of 20th century science. The questionable "ontological status" of theories is the principal point of focus. Prerequisite: three semester hours in philosophy.

*Three semester hours.*

Mr. Markle.

**17b. PHILOSOPHY OF SCIENCE II.**

A more advanced treatment of selected problems in scientific explanation. One such problem is that of "artificial intelligence" in machines. Does the traditional problem of mind and body become any less onerous when viewed within the developing context of Cybernetics and information theory? Some symbolic logic is required. Prerequisite: six semester hours in *both* philosophy and a natural science. Philosophy 17a recommended.

*Three semester hours.*

Mr. Markle.

**18a. HISTORY OF AMERICAN PHILOSOPHY.**

**Not offered, 1970-71.**

Survey of important philosophical ideas in America with emphasis on their relationship to American experience. Prerequisite: three semester hours in philosophy.

*Three semester hours.*

Mr. Beck.

**18b. SYMBOLIC LOGIC.**

Advanced work in symbolic logic, with stress on principles of deductive rigor. Some consideration of philosophical implications of logic. Topics to be discussed include: sentential calculus, predicate calculus, Tarski's definition of truth, selected metatheorems, and Henkin's completeness proof for the first order predicate calculus. Prerequisite: permission of instructor.

*Three semester hours.*

Mr. Wright.

**19a. EPISTEMOLOGY.**

Survey of the major topics in theory of knowledge, including study of significant alternative positions. Prerequisite: three semester hours in philosophy.

*Three semester hours.*

Mr. Overvold.

**19b. EXISTENTIALISM.**

Examination of the major literature of existentialist thought, with emphasis on its significance to the contemporary world. Prerequisite: three semester hours in philosophy.

*Three semester hours.*

Mr. Overvold.

**99. READINGS IN PHILOSOPHY.**

Exploration of significant philosophic issues as determined by student interest. Individual programs, including prerequisites, are developed in consultation with the department.

*Normally, three semester hours.*

Staff.

**201-4. SEMINAR IN PHILOSOPHY.**

Advanced study of topics of central importance to philosophy, such as the philosophy of Whitehead, Kant, theory of value, problem of justice, esthetics, mind and body. Prerequisites: two year-courses in philosophy, including 121 and 123.

*Three semester hours each semester.*

Staff.

**299. HONORS IN PHILOSOPHY.**

Advanced individual study of philosophic problems. Honors includes the preparation of an acceptable thesis and a comprehensive examination. Prerequisite: consent of the department.

*Normally, six semester hours.*

Staff.

**Education 290b. PHILOSOPHY OF EDUCATION.**

Not offered, 1970-71.

Description offered in the department statement under Education.

Mr. Beck.

## Physics

### DEPARTMENT FACULTY

Roy S. Anderson, Ph.D., *Professor of Physics, Department Chairman*

Earl E. Hays, Ph.D., *Professor (Affiliate) of Physics\**

C. Alton Coulter, Ph.D., *Associate Professor of Physics*

John A. Davies, Ph.D., *Associate Professor of Physics†*

Roger P. Kohin, Ph.D., *Associate Professor of Physics*

William R. Fehlner, Ph.D., *Assistant Professor of Physics*

Joseph P. McEvoy, Ph.D., *Assistant Professor of Physics*

\*On leave of absence, 1969-71.

†On leave of absence second semester 1970-71.

### UNDERGRADUATE PROGRAM

Students can adapt the undergraduate offerings in physics to a variety of individual interests or needs. A program can be formulated in which physics is developed as an area of liberal studies, as support for studies in other areas of science, or as preparation for a career in physics or in the teaching of science.



Students intending to concentrate in physics should select one of the two options: A. *General Physics*, or B. *Physics*, which are available as Physics Major programs. A student in one option may elect, at a later date, to move into the other option. In selecting either of the options the student is urged to consult with a faculty advisor from the department.

The *General Physics* program has been designed to allow students who wish to concentrate in the physical sciences to do so with a maximum of flexibility and a minimum of fixed major requirements. It will provide a background in all areas of physics to those students who wish to formulate a program having a particular interdisciplinary concentration in mind or who want a wide distribution among the liberal arts. It is also suitable for those planning a career requiring a modest background in the physical sciences such as in secondary education, business management, science policy, or the Peace Corps. The *Physics* major, which has a somewhat more structured program, is intended for those students who wish to acquire the necessary background for graduate study in physics or an immediate career in industrial or governmental laboratories. Students intending graduate work in physics are strongly urged to take two years of either German or Russian. Students who entered the University prior to September 1970 may continue with the Physics major program described in the previous catalog. This program, however, does not differ essentially from that of option B. *Physics*.

A qualified student in either option is encouraged to participate in the Physics Honors Program. During the junior and senior year the Honors student conducts an individual experimental or theoretical research project under the guidance of a faculty member. This work is submitted to the Department as an Honors Thesis. Recommendation for a degree with Honors in Physics is determined by the quality of the thesis and the performance of the student on a comprehensive examination in physics. An Honors candidate must maintain an overall B- average in physics and mathematics courses. Further information about the Honors Program is available from the Department.

#### Undergraduate Major Options Available

A. *General Physics*: This program consists of the following requirements: Physics 12, 130, 140, 220, Mathematics 13, two semester hours of Physics laboratory work beyond Physics 12, six semester hours of Physics electives and 12 semester hours of additional electives from science, mathematics and computer science.

B. *Physics*: This program requires Physics 12, 130, 140, 150, 160, 202, 207, 220, Mathematics 13, two semester hours of physics laboratory behind Physics 12, and six semester hours of mathematics electives beyond Mathematics 13.

Both programs require in addition at least 36 semester hours in courses outside of Group A.

#### GRADUATE PROGRAM

Graduate programs are offered leading to the degrees of Master of Arts and Doctor of Philosophy. A doctoral program in Chemical Physics, offered jointly with the Department of Chemistry, is also available.

Departmental research is being conducted in both theoretical and experimental physics. There are theoretical research programs in solid state physics and elementary particles. Experimental programs include studies of the magnetization of superconductors and pressure effects in solids at low temperatures and the use of electron spin resonance spec-

troscopy to investigate radiation damage in solids and the nature of ferroelectricity. In addition, theoretical and experimental research in oceanography is offered in cooperation with the Woods Hole Oceanographic Institution.

Graduate scholarships, teaching and research assistantships, and various research fellowships are available. Information on these awards will be furnished on request to the Department of Physics. First year graduate students may receive teaching assistantships and tuition scholarships. Following the first academic year, graduate students may be awarded twelve-month research assistantships with tuition scholarships. Research conducted while on research assistantships may constitute thesis or dissertation work.

All graduate students are required to pass the Physics Qualifying Examination which is designed to test the student's ability to solve problems at the upper-class undergraduate level. One year of teaching apprenticeship, or its equivalent, is required of all candidates for advanced degrees.

In addition to the requirements of the Graduate School, students in the M.A. program are generally responsible for the material covered in Physics 301b, 304, and 305.

Students in the Ph.D. program must satisfy the Ph.D. residence requirements of the Graduate School, namely 54 semester hours of graduate credit, or, for students with the Master's degree, 24 semester hours of graduate credit. The Department of Physics requires that a student in the Ph.D. program must pass, either at Clark University or elsewhere, graduate courses in physics and related fields, credit for which must total at least 54 semester hours, including at least 12 semester hours in mathematics and 6 semester hours in any related field, including mathematics. The maximum credit for research is 12 semester hours. Courses taken to fulfill part of the requirements for a Master's degree may be included in satisfying this departmental requirement. Doctoral students are responsible for the material covered in Physics 301b, 304, and 305.

Students in the doctoral program take the Physics Preliminary Examination no later than the beginning of the third year of graduate study. This is a comprehensive written and oral examination covering classical and modern physics at the graduate level. To be admitted to candidacy the student must pass an oral examination on a dissertation research proposal presented at a departmental colloquium.

Doctoral students must satisfy the departmental language proficiency requirement. Proficiency must be demonstrated in two languages selected from among French, German or Russian. Languages other than these may be chosen with permission of the Department. Proficiency can be demonstrated by giving the sense of papers in the field of physics which have been published in the chosen language. The language tests are to be administered by the faculty of the Department of Physics and must be passed no later than one year after the presentation of the dissertation proposal.

A detailed description of graduate programs and requirements is available from the Department of Physics.

## Astronomy

### UNDERGRADUATE PROGRAM

The Department of Physics offers one course in astronomy at the introductory level. More advanced courses in physics relating to astronomy are included under the offerings of that Department.

## **COURSES IN ASTRONOMY**

### **Fla. EXPLORING THE UNIVERSE.**

A one semester introduction specifically designed for the non-science student who wishes to know what science is about, but who does not wish to master the detail found in the typical introductory science survey course. Astronomy is an interdisciplinary field involving physics, mathematics, chemistry, geology, and even philosophy. This semihistorical introduction to astronomy will be an example of how scientific ideas and methods developed. The use of mathematics will be minimized; the only mathematics to be employed will be at the level of high school algebra. The following topics will be discussed: the earth and gravity, the solar system, time and the calendar, atoms, light and the stars, a typical star — our sun, weighing stars and measuring stellar distances, the interstellar medium, stellar evolution, the Milky Way and other galaxies, the structure of the universe, the origin of the universe and the origin of life. Classroom demonstration experiments, actual telescope observations and field trips to nearby observatories and planetariums will be part of the course.

*Three semester hours.*

Mr. R. Anderson.

## **COURSES IN PHYSICS**

### **F1b. PHYSICS FOR ARTISTS, POETS AND POLITICIANS.**

A comprehensive study of a wide variety of physical phenomena organized and presented specifically for liberal arts students. The course seeks to develop scientific thinking, creative problem solving and an appreciation of the beauty and order of the physical world. Secondary goals are to review the development of physics in historical perspective and sense the human qualities of some of the great physicists. The use of mathematics is minimal. Rather, the learning is built around an intense visual presentation (demonstrations, slides, diagrams, models and films), discovery of physical laws through creative manual play with scientific objects and the solving of conceptual problems drawn from everyday experience. Extensive use is made of thought experiments, model-building, approximations and estimations. Topics will include vibrations and waves, sound, light, electromagnetic radiation and atomic physics. No prerequisite.

*Four semester hours.*

Mr. McEvoy.

### **F10a. CONCEPTS OF CLASSICAL PHYSICS.**

An introduction to the theories and concepts of mechanics, thermodynamics, and electrodynamics. Three lectures, one laboratory, and one conference per week. Prerequisite: consent of the instructor or three years of high school mathematics, including algebra and trigonometry.

*Four semester hours.*

Mr. Davies.

### **F11b. CONCEPTS OF MODERN PHYSICS.**

An introduction to the theories of relativity, statistical mechanics, and quantum mechanics, with elementary applications. Normally a terminal course. Students intending to take more than one year of physics should take Physics 12b following Physics 10a. Three lectures, one laboratory, and one conference per week. Prerequisite: Physics 10a.

*Four semester hours.*

Mr. Anderson.



**F12b. MECHANICS AND RELATIVITY.**

Particle dynamics in inertial reference frames. Relativity. Required for a major in physics. Prerequisite to all more advanced courses in physics. Three lectures and one laboratory per week. Prerequisite: Physics 10a or equivalent, with Mathematics 12 concurrently.

*Four semester hours.*

Mr. Kohin.

**F120. UNDERGRADUATE SEMINAR.**

Intimate discussions of problems of contemporary interest in physics conducted by faculty and students and occasionally by outside lecturers. May be taken for credit repeatedly. One meeting per week throughout the year.

*One semester hour each semester.*

Mr. Coulter.

**130a. ELECTRICITY AND MAGNETISM.**

Phenomenological development of Maxwell's equations. Electric and magnetic properties of materials. Electric circuit theory. Three lectures per week. Prerequisite: Physics 12b with Mathematics 13 concurrently.

*Three semester hours.*

Mr. McEvoy.

**135a. ELECTRICITY AND MAGNETISM LABORATORY.**

Electrical and magnetic measurements. Exploration of electrical and magnetic phenomena. Co-requisite: Physics 130a.

*One semester hour.*

Mr. Anderson.

**140b. MODERN PHYSICS.**

A survey course treating contemporary ideas. An introduction to the quantum theory, with applications to atoms, nuclei, particles and the solid state. Prerequisite: Physics 130a.

*Three semester hours.*

Mr. Coulter.

**145b. MODERN PHYSICS LABORATORY.**

Experiments in modern physics. Co-requisite: Physics 140b. One laboratory per week.

*One semester hour.*

Mr. Anderson.

**150a. WAVES AND OSCILLATIONS.**

Oscillating mechanical and electrical systems. Electromagnetic and matter waves. Applications of the Schroedinger wave equation. Prerequisites: Mathematics 13 and Physics 130a.

*Three semester hours.*

Mr. Fehlner.

**155a. WAVES AND OSCILLATIONS LABORATORY.**

Experiments involving oscillating systems. The experimental study of optics. Co-requisite: Physics 150a.

*One semester hour.*

Mr. Anderson.

**160b. ELECTROMAGNETISM.**

The mathematical theory of electricity and magnetism. Fields and potentials. Maxwell's equations. Electromagnetic waves. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Fehlner.

**175a,b. INTERMEDIATE LABORATORY.**

A combined laboratory consisting of selected experiments taken from Physics 135a, 145b, and 155a. Students will not get credit for both Physics 175 and the above course sequence. One laboratory per week throughout the year, or two laboratories per week for a semester.

*Two semester hours.*

Mr. Anderson.

**200a. ADVANCED LABORATORY.**

Laboratory in atomic, molecular, nuclear and solid state physics. Three hours each week. *One semester hour.*

Mr. Anderson.

**201b. LABORATORY PROJECTS.**

Individual experimental projects in atomic, molecular, nuclear, and solid state physics. Projects are selected in consultation with the instructor and may consist of a single experiment conducted through the entire semester.

*Two semester hours.*

Mr. Anderson.

**202a. THERMODYNAMICS AND STATISTICS.**

The laws of thermodynamics. Kinetic theory and particle statistics. Four lectures. Prerequisite: Mathematics 13 and Physics 140b. Offered in alternate years.

*Four semester hours.*

Mr. Davies.

**205a. ELECTRONIC DEVICES AND CIRCUITS.**

Not offered, 1970-71.

Principles of electron tubes and transistors, with emphasis on design and construction. Three lectures and one laboratory per week. Prerequisite: consent of the instructor. Offered in alternate years.

*Four semester hours.*

Mr. Anderson.

**207a. INTRODUCTION TO QUANTUM THEORY.**

An introduction to quantum wave mechanics. Solutions of the Schroedinger equation. Operator techniques. Angular momenta. Approximation methods. Spectroscopy. Prerequisite: Physics 140b or consent of the instructor.

*Four semester hours.*

Mr. Kohin.

**208b. INTRODUCTION TO THE SOLID STATE.**

Crystal structure: symmetry and space groups. Chemical bonding: ionic and covalent crystals. Thermal and elastic properties. The band theory of metals and semi-conductors. Dielectric and magnetic properties. Low temperature properties. Superconductivity. Prerequisite: Mathematics 13 and consent of the instructor. Offered in alternate years.

*Four semester hours.*

Mr. McEvoy.

**209b. INTRODUCTION TO THE NUCLEUS.**

Not offered, 1970-71.

This course is the same as Chemistry 242b.

*Four semester hours.*

Mr. Brenner.

**220. UNDERGRADUATE SEMINAR.**

This course is the same as Physics F120.

*One semester hour each semester.*

Mr. Coulter.

**230. SPECIAL TOPICS IN PHYSICS.**

Independent studies in physics to provide for special needs. Individual experimental or theoretical projects are encouraged.

*Variable credit.*

Staff.

**235. HONORS.**

Independent experimental or theoretical research in physics.

*Three semester hours each semester.*

Staff.

**301b. ADVANCED MECHANICS.**

**Not offered, 1970-71.**

Lagrangian and Hamiltonian formulations. Kinematics and dynamics of rigid body motion. Canonical transformations. Hamilton-Jacobi theory.

*Four semester hours.*

Mr. Davies.

**304. ELECTRODYNAMICS.**

**Offered 1st semester only.**

Maxwell's equations. The special theory of relativity. Electromagnetic radiation. Boundary value problems. Lagrangian formulation of electrodynamics.

*Three semester hours each semester.*

Mr. Fehlner.

**305. QUANTUM MECHANICS.**

The superposition principle. Linear vector spaces. Electron spin. The Schrödinger and Heisenberg pictures. Angular momentum. Scattering theory. Time-independent and time-dependent perturbation theories. Many particle systems. Non-relativistic quantum field theory. Prerequisite: Physics 207 or equivalent.

*Four semester hours each semester.*

Mr. Coulter.

**306a. ADVANCED QUANTUM MECHANICS.**

**Not offered, 1970-71.**

Relativistic wave equations, nonrelativistic and relativistic quantum field theory, applications to solid state physics and particle physics. Prerequisite: Physics 305 or equivalent.

*Three semester hours.*

Mr. Davies.

**308. THEORY OF ATOMIC AND MOLECULAR SPECTRA.**

**Not offered, 1970-71.**

The electronic configuration of atoms: the Pauli principle and the building-up principle. Fine structure and the spinning electron. The Zeeman and Paschen-Back effects. Nuclear effects: hyperfine structure. The structure and properties of molecules as revealed by rotational, vibrational, and electronic spectra. Covalent and ionic bonds. Prerequisite: Physics 305 or consent of instructor.

*Two semester hours each semester.*

Mr. Kohin.



**309. MAGNETIC RESONANCE.**

The theory of the electron spin and nuclear magnetic resonance experiments, particularly in solids. The spin Hamiltonian and the magnetic interaction between particles. Chemical bonds and their description by the molecular orbital method. Prerequisite: Physics 308.

*Two semester hours each semester.*

Mr. Kohin.

**310. TOPICS IN PARTICLE THEORY.**

**Not offered, 1970-71.**

Subject matter drawn from such areas as quantum electrodynamics, S-matrix theory, Regge poles, approximate symmetry groups for strong interactions, etc., according to the interests of students and instructor. Prerequisite: Physics 305 or equivalent.

*Two semester hours each semester.*

Mr. Coulter.

**312b. APPLICATIONS OF GROUP REPRESENTATIONS TO PHYSICS.**

**Not offered, 1970-71.**

Representation theory for finite groups. Applications to crystallographic point groups. Representation of compact continuous groups. The rotation group with applications to atomic structure.  $SU(n)$  with applications to elementary particle theory. Finite-dimensional representations of the Lorentz group. Prerequisite: Physics 207.

*Three semester hours.*

Mr. Coulter.

**313b. LOW TEMPERATURE PHYSICS.**

**Not offered, 1970-71.**

The thermodynamics of low temperature phenomena. The properties of liquid helium. Cryogenics. The low temperature properties of solids, especially superconductivity.

*Three semester hours.*

Mr. McEvoy.

**314. ELECTRON EFFECTS IN SOLIDS.**

**Not offered, 1970-71.**

Advanced consideration of the behavior of electrons in solids, particularly in conductors and semiconductors. Prerequisite: Physics 208 and 305 or equivalents.

*Three semester hours each semester.*

Mr. Fehlner.

**330. CURRENT PROBLEMS IN PHYSICS.**

A specific topic in experimental physics is considered at the research level. Topics are selected on the basis of current interest.

*Variable credit.*

Staff.

**335. TOPICS IN THEORETICAL PHYSICS.**

An area of theoretical physics, chosen principally for students conducting theoretical research. Topics selected, as required, to emphasize special research areas or methods.

*Variable credit.*

Staff.

**340. COLLOQUIUM.**

Weekly lectures on various topics of current interest.

*One semester hour each semester.*

Staff.

**350. RESEARCH.**

*Variable credit.*

Staff.

# Psychology

## DEPARTMENT FACULTY

Seymour Wapner, Ph.D., *G. Stanley Hall Professor of Genetic Psychology, Department Chairman*  
 Robert W. Baker, Ph.D., *Professor Psychology*  
 Roger Bibace, Ph.D., *Professor of Psychology*  
 Tamara Dembo, Ph.D., *Professor of Psychology*  
 Bernard Kaplan, Ph.D., *Professor of Psychology\**  
 Morton Wiener, Ph.D., *Professor of Psychology*  
 Robert Beck, Ph.D., *Associate Professor of Psychology*  
 Leonard E. Cirillo, Ph.D., *Associate Professor of Psychology*  
 Joseph deRivera, Ph.D., *Associate Professor Psychology*  
 David Stea, Ph.D., *Associate Professor of Geography and Psychology*  
 Donald G. Stein, Ph.D., *Associate Professor of Psychology*  
 David A. Stevens, Ph.D., *Associate Professor of Psychology*  
 Nicholas S. Thompson, Ph.D., *Associate Professor of Psychology and Biology*  
 Ina C. Uzgiris, Ph.D., *Associate Professor of Psychology*  
 Jacques Vonèche, Ph.D., *Associate Professor of Psychology*  
 James D. Laird, Ph.D., *Assistant Professor of Psychology*  
 Neil O. Rankin, Ph.D., *Assistant Professor of Psychology*  
 Edward L. Klaiber, M.D., *Lecturer in Psychology*  
 Peter H. Wolff, M.D., *Lecturer in Psychology*

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Clemens E. Benda, M.D., *Professor (Affiliate) of Psychology*  
 Harold Goodglass, Ph.D., *Professor (Affiliate) of Psychology*  
 Donald Broverman, Ph.D., *Associate Professor (Affiliate) of Psychology*  
 William Vogel, Ph.D., *Associate Professor (Affiliate) of Psychology*  
 Melvin Barton, Ph.D., *Psychology Consultant to the Psychological Services Center*  
 Polly Deweese, M.S., *Social Work Consultant to the Psychological Services Center*  
 Victor H. Pentlarge, M.D., *Psychiatry Consultant to the Psychological Services Center*  
 Malcolm Sills, M.D., *Psychiatry Consultant to the Psychological Services Center*

\*Acting Department Chairman, 1969-70.

## UNDERGRADUATE PROGRAM

The department offers courses for students majoring in psychology, majors in allied fields and students wishing an orientation to the field of psychology as part of their general education.

Psychology 11a or 11b is a prerequisite to all other psychology courses. The major in psychology consists of at least 40 semester hours, in either psychology courses or courses designated as related to the major by the Department. At least 20 semester hours must be in psychology courses, and at least 10 semester hours must be in courses related to the major. Majors are required to take Psychology 11a or 11b and a minimum of one laboratory course (Psychology 201b, 203b, 204a, 205a, 206b, 210b, 223b, 236a). Psy-

chology 160b, 260a, or their equivalent is a prerequisite for laboratory courses. In addition, at least 36 semester hours of a major's program must be selected from other than the following fields or courses: All biology, education, linguistics, philosophy, psychology and sociology courses; and selected courses from economics, geography, government, and mathematics. A list of these courses is available in the Department Office.

Honors work in psychology is available to seniors who have demonstrated high scholastic achievement and the ability to work independently in scholarly situations. Students in the Honors Program carry out an independent research project under the sponsorship of a faculty member. This research provides the basis for a thesis, which upon completion is presented and defended by the student before an examining committee composed of faculty members. On the basis of the report of the examining committee and the student's adviser for the project, the Department may recommend to the College Board that the student be awarded departmental honors at one of the following levels: Highest Honors, High Honors, or Honors in Psychology.

Application for admission into the Psychology Honors Program is normally made during the second semester of the junior year, and no later than May 1 of that year. Six hours of Psychology 296 (Directed Research) and/or Psychology 297 (Directed Reading), taken during the junior year, is prerequisite for admission to the program. Students who have not fulfilled this prerequisite, but who can show evidence of the ability to do independent research, can petition the Department for waiver of the prerequisite.

Students preparing for graduate work are encouraged to take more than one laboratory course, and should also obtain a reading knowledge of French, German or Russian.

## GRADUATE PROGRAM

The department admits to graduate work only those students who plan to enroll in the Ph.D. program on a full-time basis. A Master of Arts degree, based on an experimental thesis, ordinarily completed within the first two years of graduate work, is a requirement for admission to candidacy for the Ph.D. degree. In addition, there is the requirement that every graduate student participate in the Teaching Apprenticeship Program of the department. Credit hours are not ordinarily assigned to graduate courses; however, all graduate courses carry the equivalent of three semester hours each semester.

*Master of Arts:* The customary program consists of five year (ten semester) courses — including experimental methods in psychology (301a), statistical methods (302) and seven additional semester courses — supplemented by the writing of a thesis in the area of special interest.

*Doctor of Philosophy:* The student is required to pass with distinction five courses during the first year of graduate study and a minimum of four courses during the second year. The departmental language requirement must be met by a knowledge of French, German or Russian. He is required, normally at the end of the second year, through written examination, to demonstrate his competence in psychology as a whole and in an area of specialization. In addition, the student is required to demonstrate his ability to conduct independent research as evidenced by the presentation of an acceptable dissertation. Research for the dissertation should normally be completed during the fourth year at the University; however, the length of the program will vary depending upon individual circumstances. At a final oral examination a student is required to defend his dissertation and to show his competence in the general field of psychology and in his area of specialization.



The overall aim of the graduate program is to provide the student with a general, integrated background covering the various areas of psychology. Within this emphasis more specialized training—with special stress on experimental analysis—is available in the following areas: perception, physiological, learning, thinking and problem-solving, language, social and personality. The department maintains, in addition to general experimental laboratories, specialized facilities for research and training in comparative, learning, physiological, perception, child and social psychology.

There are also three more formalized programs which provide specialized training in the areas of Clinical, Developmental and Rehabilitation Psychology.

*Clinical Psychology Program.* The department offers a four-year A.P.A.-approved program in clinical psychology leading to the degree of Doctor of Philosophy. Beyond the standards of proficiency in the general field of psychology expected of all students, the student in the Clinical Program will be required to demonstrate special mastery in the understanding of concepts in the clinical area and in the use of clinical methods. One year of internship is included in this four-year program. Provision is made for a wide variety of practical experiences in cooperating institutions, clinics and agencies. There are over 20 institutions and agencies in Worcester, Boston, Providence and surrounding areas which cooperate in providing such practicum and research facilities. In addition to the one-year internship, all students in the Clinical Program obtain a variety of practicum experiences in the Clark University Psychological Services Center throughout their enrollment in the graduate program. For further information, write to the director of the program: *Dr. Morton Wiener*.

There is a Psychological Services Center on campus which is operated as part of the doctoral training program in Clinical Psychology and which offers some psychological services to students who wish help in academic or personal adjustment. Such services are limited and, where necessary, students will be referred to other appropriate University or community resources.

*Post-doctoral training in clinical psychology* is available. It aims to provide opportunities for clinical psychologists to develop further their clinical and research skills. Facilities of the Department, of Gardner State Hospital, and other agencies are utilized.

*Developmental Psychology Program.* This program is designed to train students in the comparative and experimental analysis of behavioral development. It emphasizes not only the study of human development over a wide age range, but also stresses the application of developmental principles, concepts and methods to problems of general psychology, psychopathology, social psychology, etc. For further information, write to the director of the program: *Dr. Bernard Kaplan*.

*Rehabilitation Research Training Program.* In conjunction with all other areas of specialization, rehabilitation research training is available. This training is designed to prepare students for investigation of psychological problems as they occur in everyday life. Emphasis on development of novel techniques and concepts is a main feature of the training. An integral part of the program is an apprenticeship-practicum during which the various phases of research in real-life settings are examined under the guidance of a staff member. This program is especially pertinent to those who are interested in social-emotional and value problems of handicapped and non-handicapped people. For further information, write to the director of the program: *Dr. Tamara Dembo*.

*Interdisciplinary Work.* The Department recognizes the interest of many students to undertake study and research which cuts across disciplines or areas that now exist. Interdisciplinary activity by students is generally feasible at Clark inasmuch as various members of the Psychology faculty are now, or recently have been, engaged in activities with faculty of such departments as Biology, Education, English, Geography, History Mathematics and Sociology. Dr. David Stea offers jointly with the School of Geography undergraduate and graduate courses in Behavioral Science and the Environment, and Development of Spatial Cognition. In addition informal seminars on topics of mutual interest to geographers and psychologists are scheduled from time to time throughout the year.

*Financial Aid.* In addition to University scholarships, fellowships, teaching assistantships, and stipends, the Department has available such forms of financial support as United States Public Health Service and Rehabilitation Services Administration training stipends, Veterans Administration assistantships and stipends, NDEA and NSF Traineeships, and research assistantships.

#### THE HEINZ WERNER INSTITUTE OF DEVELOPMENTAL PSYCHOLOGY

Associated with the Department is the Heinz Werner Institute of Developmental Psychology, which has three aims: first, to integrate various research programs dealing with developmental problems; second, to bring to Clark University scholars, teachers, and research workers from disciplines for which developmental problems are pertinent such as anthropology, biology, and certain areas of medicine; third, to train research workers on post-doctoral levels in the comparative-developmental approach to behavior. Information concerning post-doctoral work at the Institute may be obtained by writing to *Dr. Bernard Kaplan*.

#### COURSES

##### F11a. GENERAL PSYCHOLOGY.

Introduction to the principles of human behavior.

*Four semester hours.*

To be announced.

##### F11b. GENERAL PSYCHOLOGY.

Introduction to the principles of human behavior.

*Four semester hours.*

Mr. Wapner.

##### 12a. PSYCHOANALYTIC INTERPRETATION OF BEHAVIOR.

Psychoanalytic contributions to the understanding of human behavior and conflicts.

*Two semester hours.*

Mr. Bibace.

##### 103a,b. ABNORMAL PERSONALITY.

An analysis of the concepts used to explain abnormal personality and a survey of the major types of deviant behavior. Prerequisite: Psychology 172a.

*Three semester hours*

Mr. Wiener.

##### 130b. PSYCHOLOGY OF LEARNING.

Methods and findings in the study of learning are discussed, with emphasis on their relation to theories of learning. Selected controversial issues are examined.

*Three semester hours.*

Mr. Stevens.

**150a. INTRODUCTION TO CHILD PSYCHOLOGY: PHYSICAL AND INTELLECTUAL DEVELOPMENT.**

The normal development of the child from infancy up to adolescence, with emphasis on the areas of physical and motor development, cognitive processes and language and fantasy life.

*Three semester hours.*

Mrs. Uzgiris.

**150b. INTRODUCTION TO CHILD PSYCHOLOGY: PERSONALITY AND SOCIAL DEVELOPMENT.**

The development of the child's personality and interpersonal behavior, in relation to family, peer group and culture.

*Three semester hours.*

Mrs. Uzgiris.

**160b. QUANTITATIVE METHODS.**

Introduction to basic techniques of descriptive and inferential statistics. Primarily for sophomores with a good background in algebra, and prospective majors intending to spend the junior year away from Clark.

*Three semester hours.*

Mr. Broverman.

**170a. INTRODUCTORY SOCIAL PSYCHOLOGY.**

Focuses on the dynamic interaction between the person and his social environment: The impact of the group and society on one's attempt to develop as a person. The impact of man's emotional needs on the properties of the groups and societies we construct. The effect of personal decisions on the management of group conflict.

*Three semester hours.*

Mr. deRivera.

**172a,b. PSYCHOLOGY OF PERSONALITY.**

Consideration of various theoretical approaches, including psychoanalytic, behaviorist and self theories, and of research work in areas such as anxiety, stress, unconscious processes, emotion and motivation.

*Three semester hours.*

Mr. Laird.

**201b. LABORATORY IN SOCIAL PSYCHOLOGY.**

The theme of this laboratory will be man's caring for others and himself. Investigation will begin in a group dynamics laboratory and will, hopefully, branch out to include research on the Worcester community, the national community, and the world community of persons. Prerequisite: Psychology 170a and 160b.

*Four semester hours.*

Mr. deRivera.

**203b. LABORATORY IN PERCEPTION.**

The laboratory course in perception will include investigation of sensory and perceptual phenomena in a variety of sense modalities. Theoretical and methodological issues will be considered in the context of specific experimentation. Prerequisite: Psychology 160b or 260a and Psychology of Perception.

*Four semester hours.*

Mr. Vonèche.

**204a. LABORATORY IN LEARNING.**

The course is designed to familiarize students with research methods and experimental designs used in investigations of theories of learning and learning phenomena, with both human and animal subjects. Prerequisite: Psychology 130b, and either Psychology 160b or 260a.

*Four semester hours.*

Mr. Stevens.



**205a. LABORATORY IN THINKING.**

Empirical studies of selected problems in such areas as concept formation, problem solving, and psycholinguistics. Related theoretical and methodological issues considered in their historical context. Prerequisite: Psychology 160b or 260a.

*Four semester hours.*

Mr. Cirillo.

**206b. LABORATORY IN PERSONALITY.**

Focus on issues and problems in psychological research in general and in the personality area in particular, the problems being exemplified in studies developed and performed by the class group and by individuals. Experiments may be in any of the conventional areas of personality research, such areas as perceptual defense, motives and performance, self perception, experimenter influence and emotions. Prerequisite: Psych. 160b and 172a, or their equivalents.

*Four semester hours.*

Mr. Laird.

**207a,b. BEHAVIORAL SCIENCE AND THE ENVIRONMENT.**

Human and animal social behavior related to aspects of the physical environment. Social interaction, territory, density, movement and migration. Introduction to environment design: problem formulation, design processes, simulation. Offered jointly with School of Geography. Prerequisite: permission of instructor.

*Three semester hours each semester.*

Mr. Stea.

**208a. ENVIRONMENTAL SENSITIVITY TRAINING.**

(Course has two parts running in alternate weeks) A. Observation and multiple observation in the outdoors environment. Listening. Note-taking. Art of personal impressions. Following up particular themes and individual student impressions through measurement. Counting, timing, computing, mapping, reporting. Emphasis is placed primarily on observing but also on measuring and recording the real social and physical environment and knowing the environment through being in touch with one's own thoughts and feelings on site and in memory. Review of literature on public behavior. Rules of Etiquette. The direction of Erving Goffman. B. Review of literature on public behavior: social psychology of hospital wards, asylums, prisons.

*Three semester hours.*

Mr. Beck.

**209b. DEVELOPMENTAL APPROACHES TO BEHAVIOR.**

A critical examination of presuppositions, methods, concepts and empirical inquiries of those concerned with the development of behavioral systems. Implications of developmental conceptualization for all of the life sciences will be discussed. Psychological theories of Freud, Piaget and Werner will be given special emphasis.

*Four semester hours.*

Mr. Kaplan.

**210b. LABORATORY IN DEVELOPMENTAL PSYCHOLOGY.**

**Not offered, 1970-71.**

The laboratory course in developmental psychology will be aimed at giving students direct experience with the phenomena described by Heinz Werner and Jean Piaget. The course will exemplify concepts such as syncretism in different populations (young children, schizophrenics, mentally retarded, etc.) and at different developmental levels, for instance, at the level of action or of thought. (Students analyze cognitive processes, and conduct an experiment.) Prerequisite: Psychology 160b or 260a and 209b.

*Four semester hours.*

Mr. Bibace.

- 211a. **DEVELOPMENTAL APPROACHES TO LEARNING.** Not offered, 1970-71.  
Applications of developmental psychology to slow learners in the classroom. Particular attention is paid to the work of Kephart, Rabinovitch and Cruickshank. Practicum work with children is required. Prerequisite: Psychology 160b, 209b.  
*Three semester hours.* Mr. Bibace.
- 214a. **SEMINAR IN AGGRESSIVE BEHAVIOR.** Not offered, 1970-71.  
A critical examination of the concept of aggression, including theories pertaining to source of aggressivity and its expression as well as relevant empirical evidence. Psychodynamic, behaviorist, and ethological viewpoints will be discussed.  
*Three semester hours.* Mrs. Uzgiris.
- 220a. **MATHEMATICAL APPROACHES TO PSYCHOLOGY.** Not offered, 1969-70.  
Intensive analysis of several mathematical models used in psychology. Offered in alternate years. Prerequisite: Mathematics 12 or consent of the instructor.  
*Three semester hours.*
- 221a. **MYTH, DREAM AND SYMBOL.**  
A critical examination of various theories of symbol-formation with special emphasis on the origins, structures and functions of dreams and myths. The relation of dream formation to psychopathology and the recent work on the physiological bases of dreaming will also be discussed. Prerequisite: consent of the instructor. Limited enrollment.  
*Four semester hours.* Mr. Kaplan.
- 222a. **THE PHYSIOLOGY OF BEHAVIOR.**  
A survey of current problems in Physiological Psychology including theories of brain function. Emphasis will be placed on the underlying physiological mechanisms which mediate human behavior, i.e., motivation, emotion, learning, perception, and memory. The course is constructed on a systems approach, designed to demonstrate the complex and interdependent relationship of the body and brain to behavior.  
*Three semester hours.* Mr. Stein.
- 223b. **LABORATORY IN PHYSIOLOGICAL PSYCHOLOGY.**  
Introduction to methods and techniques used to study the physiological bases of behavior. Students participate in debates of interest to the group. Prerequisite: Psychology 222a or consent of the instructor.  
*Four semester hours.* Mr. Stein.
- 224b. **HUMAN BEHAVIOR AND NERVOUS SYSTEM FUNCTIONING.**  
Biological-behavioral relationships in terms of individual differences are discussed. Among the topics covered are: electrophysiological studies of autonomic functioning of stress; EEG; brain localization of behavioral functions in humans by means of electrical stimulation and studies of brain damage; selected problems in psychopharmacology. Equal emphasis is placed upon investigations of normal and abnormal processes.  
*Three semester hours.* Mr. Vogel.
- 225a. **SEMINAR IN REHABILITATION PSYCHOLOGY.**  
Psychological problems in everyday life situations, such as problems of physically disabled, mentally retarded, the aged, the poor, etc., will serve as topics. The primary focus is on interpersonal relationships and value problems.  
*Three semester hours.* Miss Dembo.

**227a. BIOLOGICAL CORRELATES OF BEHAVIOR.**

Special emphasis on sex differences.

*Three semester hours.*

Mr. Broverman.

**228b. PSYCHOLOGY OF LANGUAGE.**

Not offered, 1970-71.

A psychological analysis of the use of symbols in language, dreams, and myth. Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Kaplan.

**230b. CONTEMPORARY ISSUES IN LEARNING.**

Seminar dealing with contemporary theory and research in the psychology of learning.

Prerequisite: Psychology 130b and consent of instructor.

*Three semester hours.*

Mr. Stevens.

**231b. SEMINAR IN THE HISTORY OF PSYCHOLOGY.**

Not offered, 1970-71.

Historical development of theories and methods in psychology. Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Kaplan.

**232b. SEMINAR IN MODERN PSYCHOLOGICAL THEORIES.**

Not offered, 1970-71.

Comparisons and evaluations of various modern theories in psychology. Prerequisite: consent of the instructor.

*Three semester hours.*

**233b. HISTORY AND CONTEMPORARY THEORIES.**

Examination of the history and current status of selected methods and theories in psychology. Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Cirillo.

**236a. LABORATORY IN CHILD PSYCHOLOGY.**

Survey of research methods used in the study of children, with particular emphasis on observational techniques. Lecture: 2 hours. Laboratory: 3 hours. Prerequisite: Psychology 160b, 260a, 150a or 150b.

*Four semester hours.*

**237b. INTERPERSONAL PERCEPTION.**

Not offered, 1970-71.

A detailed examination of various theoretical approaches to phenomena of interpersonal perception. Included will be the predictions of role theory, balance and consistency theories, and various personality theories. The empirical evidence relative to these predictions will be discussed; particular attention will be given observations that are not readily interpretable by social psychological theories.

*Four semester hours.*

**240b. THE MOTIVATING FUNCTION OF STIMULATION.**

Not offered, 1970-71.

This course will deal with the role of certain properties of stimuli such as novelty, variety, incongruity and complexity, in arousing and maintaining interest, exploration and affect. It will include coverage of the experimental literature on this subject, as well as applications to and implications for the psychology of aesthetics and for the individual response to the physical environment.

*Three semester hours.*

**260a. INTRODUCTION TO QUANTITATIVE METHODS IN PSYCHOLOGY.**

Introduction to basic techniques of descriptive and inferential statistics. Primarily for juniors. Prerequisite for all laboratory courses for those who have not taken Psychology 160b.

*Three semester hours.*

Mr. Rankin.



**270a. ADVANCED TOPICS IN SOCIAL PSYCHOLOGY.**

Intensive treatment of selected areas in social psychological research and theory, including: consistency theories in attitude formation and in interpersonal perception; attribution theory in self-perception; social/situational determinants of normal, everyday behavior, and of anti-social behaviors such as violence, criminality and riots. Permission of instructor required.

*Three semester hours.*

Mr. Laird.

**296a,b. DIRECTED RESEARCH IN PSYCHOLOGY.**

Independent study for qualified students not in the honors program. Prerequisite: approval of department chairman.

*Three semester hours each semester.*

Staff.

**297a,b. DIRECTED READINGS IN PSYCHOLOGY.**

Independent study for qualified students not in the honors program. Prerequisite: approval of department chairman.

*Three semester hours each semester.*

Staff.

**299. HONORS IN PSYCHOLOGY: SENIOR YEAR.**

Students will carry out a research project under the direction of a member of the staff.

*Four semester hours each semester.*

Staff.

**THE HISTORY AND PRESENT STATUS OF INSTINCT.**

It has long been argued and long contested that man and animal alike are guided in their social behavior by innate tendencies. This offering will emphasize the devious and irrational course of progress in a scientific field of study so loaded with social and philosophic implications. Permission of the Instructor.

*Three credit hours.*

Mr. Thompson.

**PRIMATE SOCIAL BEHAVIOR AND HUMAN EVOLUTION.**

The study of the social behavior of monkeys and apes highlights central problems in psychological, zoological, and anthropological approaches to behavior. It also has important implications for the past evolution and present nature of man's sociality.

*Three credit hours.*

Mr. Thompson.

**PRINCIPLES OF BEHAVIORAL EVOLUTION.**

From a broad survey of the social systems of animals, this course will attempt to distill the general principles to have directed the evolution of animal behavior.

*Three credit hours.*

Mr. Thompson.

**GRADUATE COURSES**

Persons interested in Graduate education in the Psychology Department at Clark are invited to write for the brochure from the Department. This brochure discusses the philosophy of graduate education in the Psychology Department and presents information concerning the seminars offered by members of the Department. Graduate courses are not listed in this Bulletin because space limitations preclude adequate presentation of the nature of the curriculum at the graduate level.

# Romance Languages

## DEPARTMENT FACULTY

J. Fannin King, M.A., *Associate Professor of Romance Languages,  
Acting Department Chairman*

Raymond E. Barbera, Ph.D., *Professor of Romance Languages*

J. Richard Reid, Ph.D., *Professor of Romance Languages\**

Pierre L. Horn, M.A., *Assistant Professor of Romance Languages*

John F. Hyland, M.A., *Assistant Professor of Romance Languages*

Nancy Baum Missud, M.A.Ed., *Instructor in Romance Languages,  
Administrative Assistant to the Department Chairman*

Gale H. Nigrosh, M.A.T., *Instructor in Romance Languages*

Claire Quintal, Docteur de l'Université de Paris, *Associate Professor  
(Affiliate) of French*

\*On leave of absence, 1970-71.

## UNDERGRADUATE PROGRAM

The department offers courses in the languages and literatures of France, Spain and Spanish America. These courses fall principally into two groups: lower level (French and Spanish 11 and 12), and upper level (all other courses). French 113 (French civilization) constitutes a separate category.

In the lower level the primary aim is the mastery of the skills of communication in a language, with a view to its effective use for a variety of possible ends. These skills include reading, writing, speaking and understanding as well as what may be called basic literacy in the language.

In the upper level, the primary aim is an acquaintance in depth with a foreign civilization, principally through a study of its literature but with attention also to other aspects of its culture and to the further perfection of linguistic competence. The courses in literature are complemented by others in civilization and in advanced composition, conversation and phonetics. All upper level courses are conducted in the language.

A major in Romance languages must comprise:

1. Thirty semester hours to be chosen from French 137 and above and/or Spanish 137 and above.
2. French 113 or the equivalent.
3. French 261 (for students principally majoring in French.) The number of semesters of this course shall be determined by the student's needs.
4. At least 6 semester hours, to be approved by the department, in non-Romance literature.

The Romance language major program may be in either French or Spanish exclusively, or include both languages in any proportion to suit the needs and desires of the individual. Major students are urged, however, to acquire a basic competence in both languages even though specializing in only one.

In addition, at least 36 semester hours of a major's program must be selected from other than Group C courses (See Page 24 concerning "Groups").

Students intending to major in Romance languages should consult the department chairman. An honors program in Romance languages is available to qualified upperclassmen.

### LANGUAGE LABORATORY

A modern electronic language laboratory is available for class instruction, and independent study. Use of the laboratory is required of students in the lower level and "137" courses in French and Spanish, and available to others.

### GRADUATE PROGRAM

*M.A.T.* The Program for Departmental Interns in Romance Languages, offered with the cooperation of the Department of Education, leads to the degree of Master of Arts in Teaching. The requirements for this degree are listed above, in the catalog section entitled "The Graduate School."

This program of preparation of teachers of French and/or Spanish is explicitly structured as a two-year experience. Participants are appointed as Departmental Interns, and normally have the title of Teaching Assistant Scholar, involving remission of tuition and a cash stipend.

The interns devote half-time to study (in Romance languages and literatures, education or other fields bearing on the individual's needs and interests), and the other half to supervised teaching and assistance to the department.

The program is administered by a Coordinating Committee consisting of the director, who is a member of the Department of Romance Languages, one other member of that department, one member of the Department of Education, and one of the departmental interns. The coordinating committee for 1969-70 was: Mr. Reid, *Romance Languages, Director*; Mrs. Missud, *Romance Languages*; Miss Kenney, *Education*, and Miss Wacht, *Departmental Intern*.

A brochure containing further details concerning procedures and requirements is available from the director.

### COURSES IN FRENCH

#### F11. ELEMENTARY.

For beginners or others not yet qualified to enter the intermediate course. Grounding in all four language skills (hearing, speaking, reading, writing) as preparation for subsequent courses conducted in the language. Meets each week: twice in General Session, twice in small Drill Sessions, three half-hour periods of individual work in the language laboratory. Indivisible course.

*Three semester hours each semester.*

Staff.

#### F12. INTERMEDIATE.

Review of the elements and further development of communication skills aimed at a basic literacy. Conducted in French. Meets each week: twice in General Session, twice in small Drill Sessions, three half-hour periods, of individual work in the laboratory. Prerequisite: French 11 or equivalent skill in the language, to be determined by a placement test.

*Three semester hours each semester.*

Staff.



**F113. INTRODUCTION TO FRENCH CIVILIZATION.**

A selective survey of the history, art, literature, and music of France, from the Middle Ages to modern times. Conducted in English. An elementary knowledge of French is desirable but not required. Offered in alternate years.

*Three semester hours each semester.*

Miss Quintal.

**F131. READINGS IN FRENCH LITERATURE.**

Third-year level. The emphasis in the first semester is mainly on the study of 20th century literature analyzed with respect to theme, tone, symbol, character, and plot. The second semester deals with literary and social aspects of outstanding modern authors. Conducted in French. Prerequisite: French 12 or equivalent skill in the language, to be determined by a placement test.

*Three semester hours each semester.*

Mr. Hyland and Staff.

**132a. THE REBEL AND OUTSIDER.**

Third-year level. The social outlaw as portrayed in selected works of French writers, from Molière to the present. Conducted in French. Prerequisite: First semester of French 131, or grade of B- or higher in French 12, or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor.

*Three semester hours.*

Mr. Horn.

**133a. CONTEMPORARY FRANCE.**

Third-year level. A comprehensive view of France since 1945, as expressed in the writings of sociologists, political scientists, novelists, critics, and journalists of the period. Conducted in French. Prerequisite: First semester of French 131, or grade of B- or higher in French 12, or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor.

*Three semester hours.*

Mr. Hyland.

**F134b. THE TWENTIETH CENTURY FRENCH NOVEL.**

Third-year level. Readings in the landmark works of contemporary French fiction, including Proust, Gide, Malraux, Sartre, Camus, and Sarraute. Conducted in French. Prerequisite: First semester of French 131, or grade of B- or higher in French 12, or equivalent skill in the language, to be determined by a placement test.

*Three semester hours.*

Mr. Hyland.

**F135b. FRENCH POETRY: BAUDELAIRE TO THE PRESENT.**

Third-year level. An extensive examination of Symbolist and Surrealist poetry. Other modern poets, such as Saint-John Perse, Michaux and Francis Ponge will also be studied. Conducted in French. Prerequisite: First semester of French 131, or grade of B- or higher in French 12, or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor.

*Three semester hours.*

Mr. Horn.

## 137. ORAL AND WRITTEN FRENCH.

The aim of this third-year course is to perfect skills in communication both oral and written. In the first semester, particular attention is given to the sounds of French and to its rhythm and melodic patterns. In the second semester, increasing attention is given to grammatical patterns and written French and fluency in the spoken language. Conducted in French. Two regular class periods, one two-hour session and three half-hour periods in the laboratory per week. Prerequisite: Grade of B- or higher in French 12, or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor.

*Three semester hours each semester.*

Mr. King.

## Comparative Literature 18. LITERATURE AND THE NATURE OF MAN.

See description under Comparative Literature.

## 247b. EXPOSITORY WRITING AND STYLISTICS.

Not offered, 1970-71.

Introduction to *explications de textes* as a technique for the analysis of literature; study of rhetorical methods and their application, through the writing, in French, of critical essays to enhance appreciation and command of the written language. Conducted in French. Prerequisite: Grade B- or higher in French 137, or the equivalent. Offered in alternate years.

*Three semester hours.*

Mr. Horn.

## ADVANCED LITERATURE COURSES.

These courses are offered as one-half-of-a-semester courses. Students may register for any combination of these courses, provided only that they take the *same* number of them in *each* half of the semester. Thus, if they take only two half-term courses, they may choose any one from the first and any one from the second half of the semester. If they take four such courses, they must choose two from each half of the semester, etc. A further requirement is that students begin their advanced literature course program by taking the introductory half-semester course, French 253a. Students may with departmental permission register for other courses at the 200 level concurrently with French 253a.

- |       |                                                                                                                                                   |             |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 251a. | { 1 — RABELAIS, MARGUERITE DE NAVARRE AND OTHER FICTION WRITERS<br>OF THE RENAISSANCE.<br>2 — THE AGE OF CORNEILLE: CORNEILLE, DESCARTES, PASCAL. | Mr. King.   |
| 252a. | { 1 — MOLIERE.<br>2 — RACINE.                                                                                                                     | Mr. Horn.   |
| 253a. | { 1 — LITERARY DOCTRINES.<br>2 — THE 19TH CENTURY NOVEL OF SOCIAL INJUSTICE.                                                                      | Mr. Hyland. |
| 254b. | { 1 — THEATER BETWEEN THE WARS.<br>2 — BALZAC.                                                                                                    | Mr. Horn.   |
| 255b. | { 1 — FLAUBERT.<br>2 — <i>LES FLEURS DU MAL</i> .                                                                                                 | Mr. Horn.   |
| 256b. | { 1 — ROUSSEAU AS THINKER.<br>2 — THE NOVEL OF 1750-1800.                                                                                         | Mr. Hyland. |

- 257b. { 1 — VOLTAIRE.  
2 — THEATER IN THE 18TH CENTURY: CLASSICISM AND REVOLT. Mr. King.

*Three semester hours each.*

**261. SENIOR TUTORIAL.**

**Not offered, 1970-71.**

A program of extensive readings and of tutorials designed to provide the student with a general view of the whole of French literature. The readings will be planned individually for each student in order to complement his previous coursework.

*Three semester hours each semester.*

Staff.

**106. SPECIAL TOPICS IN FRENCH.**

Staff.

**206. SPECIAL TOPICS IN FRENCH.**

Staff.

**COURSES IN SPANISH**

**F11. ELEMENTARY.**

For beginners or others not yet qualified to enter the intermediate course. Grounding in all four language skills (hearing, speaking, reading, writing) as preparation for subsequent courses conducted in the language. Meets each week: twice in General Session, twice in small Drill Sessions, three half-hour periods of individual work in the language laboratory. Indivisible course.

*Three semester hours each semester.*

Staff.

**F12. INTERMEDIATE.**

Review of the elements and further development of communication skills aimed at a basic literacy. Conducted in Spanish. Meets each week: twice in General Session, twice in small Drill Sessions, and three half-hour periods of individual work in the laboratory. Prerequisite: Spanish 11 or equivalent skill in the language, to be determined by a placement test.

*Three semester hours each semester.*

Staff.

**F131. READINGS IN SPANISH AND  
SPANISH-AMERICAN LITERATURE.**

**Not offered, 1970-71.**

Third-year level. The emphasis in the first semester is on reading as communication, with analysis and practice of the techniques of reading in Spanish; in the second semester, on the understanding of works of high literary quality and broad appeal. Readings from Spain and one American nation, selected with a view to developing insight into the respective cultures. Conducted in Spanish. Prerequisite: Spanish 12 or equivalent skill in the language, to be determined by a placement test.

*Three semester hours each semester.*

Mr. Reid.

**F131.1a, F131.1b. MEXICAN THEMES.**

**Not offered, 1970-71.**

Independent study of literature dealing with some theme of Mexican culture, of the student's choosing. Written report. Limited to students who are currently enrolled in, or who have previously completed, the second semester of Spanish 131.

*Variable credit.*

Mr. Reid.



**137. ORAL AND WRITTEN SPANISH.**

Third-year level. A rapid, intensive review of grammar; the elements of phonetics; exercises in composition and pronunciation; conversational practice. Conducted in Spanish. Two regular class periods, one two-hour session, and one to two hours in the laboratory per week. Prerequisite: Grade of B- or higher in Spanish 12 or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor. Offered in alternate years.

*Three semester hours each semester.*

Mr. Barbera.

**241. THE LITERATURE OF SPAIN.**

**Not offered, 1970-71.**

A general view of Spanish literature with emphasis on the origins and development of the novel and drama, culminating in the masterworks of the nineteenth century. Attention is given to political and cultural background. Conducted in Spanish. Prerequisite: Grade of B- or higher in a third-year course. Offered in alternate years.

*Three semester hours each semester.*

Mr. Barbera.

**242a. EARLY SPANISH LITERATURE FROM THE  
POEMA DE MIO CID TO THE CELESTINA.**

This course will emphasize the nature of epic poetry, the first manifestation of "realism" in the literature of the Middle Ages, and will culminate in the hybrid masterpiece, the *Celestina*, a combination of novel and drama, unique in the history of European literature. Conducted in Spanish. Prerequisite: Grade of B- or higher in a third-year course. Offered in alternate years.

*Three semester hours.*

Mr. Barbera.

**243a. CERVANTES.**

**Not offered, 1970-71.**

This course will concentrate upon *Don Quixote* with excursions into other writings of Cervantes illustrating the changes in his literary development. Cervantes' debt to previous literary works will be studied. Conducted in Spanish. Prerequisite: Grade of B- or higher in a third-year course. Offered in alternate years.

*Three semester hours each semester.*

Mr. Barbera.

**244b. THE DRAMA OF THE SIGLO DE ORO.**

Besides studying the major figures such as Lope de Vega, Tirso de Molina, Alarcón and Calderón de la Barca, there will be some study of the origins of the drama in Spain. Conducted in Spanish. Prerequisite: Grade of B- or higher in a third-year course. Offered in alternate years.

*Three semester hours.*

Mr. Barbera.

**245b. THE MODERN NOVEL.**

**Not offered, 1970-71.**

A number of 19th century novels will be read. The 20th century will be represented by such outstanding novelists as Galdós (who bridges the 19th and 20th centuries), Unamuno, Valle-Inclán and Baroja. Conducted in Spanish. Prerequisite: Grade of B- or higher in Spanish 131 or 137, or the equivalent. Offered in alternate years.

*Three semester hours.*

Mr. Barbera.

**106. SPECIAL TOPICS IN SPANISH.**

Staff.

**206. SPECIAL TOPICS IN SPANISH.**

Staff.

**COURSES IN ROMANCE LANGUAGES**

201. HONORS: JUNIOR YEAR.  
*Variable credit, normally three semester hours each semester.* Staff.
202. HONORS: SENIOR YEAR.  
*Variable credit, normally three semester hours each semester.* Staff.
106. SPECIAL TOPICS IN ROMANCE LANGUAGES. Staff.
206. SPECIAL TOPICS IN ROMANCE LANGUAGES. Staff.
270. (ALSO DESIGNATED EDUCATION 270). THE TEACHING OF ROMANCE LANGUAGES.  
A practicum course for Teaching Assistant Scholars serving as first-year Departmental Interns in Romance Languages. A weekly lecture and readings to provide a basis in the theory of applied linguistics; directed teaching in the language courses; and a semi-monthly seminar for discussion of the relation between theory and practice, as well as other subjects of professional concern.  
*Three semester hours each semester.* Staff.
271. (ALSO DESIGNATED EDUCATION 271). THE TEACHING OF ROMANCE LANGUAGES — ADVANCED.  
A continuation of course 270, for second-year Interns.  
*Three semester hours each semester.* Staff.
- 280a. } RESEARCH.  
280b. }
- Individual direction of departmental interns in their professional projects.  
*Variable credit.* Staff.

# Russian

**DEPARTMENT FACULTY**

Walter Schatzberg, Ph.D., *Associate Professor of German, Coordinator of Russian Program*

Serge Durilin, Jr., M.A., *Assistant Professor of Russian*

**UNDERGRADUATE PROGRAM**

Courses are offered in Russian language and literature to provide a competent reading and speaking knowledge of the language essential for carrying on advanced study in many fields, to fulfill the elective requirement for the degree of Bachelor of Arts and to provide an introduction to Russian civilization.

**COURSES**

- F11. INTRODUCTORY RUSSIAN.  
An introduction to the written and spoken language. Four class periods and three laboratory sessions per week. Indivisible course.  
*Four semester hours each semester.* Mr. Durilin.

# F12. INTERMEDIATE RUSSIAN.

Advanced Russian grammar. Continued emphasis upon reading and conversation. Three class periods, one supervised drill session, and three laboratory sessions per week. Open to qualified freshmen.

*Four semester hours each semester.*

Mr. Durilin.

# 13. ADVANCED RUSSIAN.

Intensive reading of contemporary and literary sources. Advanced composition and conversation.

*Three semester hours each semester.*

Mr. Durilin.

# 130. LITERARY ANALYSIS OF SELECTED WORKS OF RUSSIAN LITERATURE.

In Russian. Prerequisite: Russian 13 or equivalent with permission of the instructor.

*Three semester hours each semester.*

Staff

# 180. SOVIET LITERATURE.

See Cooperative Programs.

In translation. Poems, plays, and novels of selected Soviet authors considered as works of literary art and as illustration of the social, economic, and political condition of the period.

*Three semester hours each semester.*

Staff

# COOPERATIVE PROGRAMS

The following courses in Russian Literature are available to Clark students at the College of the Holy Cross:

# 173. DOSTOEVSKY.

Fall 1970.

A monographic course conducted in English. Among the major works of Dostoevsky which will be studied are *Crime and Punishment*, *The Notes from the Underground*, *the Idiot*, *The Possessed* and *the Brothers Karamazov*.

*Three credit hours.*

Staff

# 181. SOVIET LITERATURE.

Fall 1970.

In translation. Poems, plays, novels of selected Soviet authors, representative of the Soviet literary scene are discussed as illustrations of the social, economic and political conditions of the period.

*Three credit hours.*

Staff

# RUSSIAN LITERATURE FROM 11TH TO THE 18TH CENTURY.

Spring 1971.

In translation. A literary-historical survey of medieval and post-medieval works of Russian literature, religious as well as secular. The course will include discussion of the Igor Tale, the Don Tale, the Petrine literature, the influences of the West and the evolution of Russian literary language and various genres in the 18th century.

*Three credit hours.*

Staff

# TOLSTOI.

Spring 1971.

A monographic course, conducted in English. Discussed are Tolstoi's early works as well as the major novels *War and Peace*, *Anna Karenina*, *The Resurrection*, *Death of Ivan Ilych* and a number of post-conversion works.

*Three credit hours.*

Staff



1717101. GOLDEN AGE OF RUSSIAN LITERATURE.

Offered in 1970-71.

Conducted in English. Study of the Russian Novel including works of Lermontov, Gogol, Turgenev, Tolstoi, Dostoevsky and Chekhov.

Three semester hours each semester.

Staff

## Sociology

### DEPARTMENT FACULTY

William C. Kvaraceus, Ph.D., *Professor of Education and Sociology*

Howard R. Stanton, Ph.D., *Professor of Sociology*

Stanford N. Gerber, Ph.D., *Assistant Professor of Social Anthropology and Sociology*

Christopher J. Hewitt, Ph.D., *Assistant Professor of Sociology*

Mario Montano, Ph.D., *Assistant Professor of Sociology*

Anselme Remy, M.A., *Visiting Lecturer in Anthropology*

### UNDERGRADUATE PROGRAM

An undergraduate major in sociology is designed to provide the student with an understanding of the intellectual tradition which has focused on description and explanation of human society, its structure, organization, and process. Emphasis is on both theoretical aspects of society in general and specifically the nature of American society. Requirements for a major in sociology consist of 24 semester hours in sociology, of which six must be from 1-level courses and six from an advanced theory course (Sociology 290 or its equivalent). In addition, 18 semester hours must be in related fields, which are: economics, government, history, international relations, linguistics, philosophy, psychology; Education 201, 205, 230, 280; and Geography 161, 207, 261, 269, 272, 273. All students are encouraged to take 1-level courses during their freshman and sophomore years, since preference is given to underclassmen. Six semester hours of 1-level courses are the prerequisite for all 2-level courses.

In addition, at least 36 semester hours of a major's program must be selected from other than the related fields listed above.

An honors program of independent study and research is available to qualified upperclassmen. Ordinarily a candidate will begin honors work in the second semester of the junior year by enrolling in Sociology 28.

In addition to the courses listed below, a number of junior-senior level courses in sociology are being offered at Assumption College and the College of the Holy Cross. These courses are open only to junior and senior sociology majors. Enrollment in these courses is limited and students who are interested are urged to enroll for them early.

### GRADUATE PROGRAM

Graduate study leading to the Master of Arts degree is offered. The program emphasizes theory and research methods. Field research as part of the thesis preparation is normally done.

All graduate students are required to have teaching experience as part of their M.A. program. This may be accomplished by assisting in one or more of the 1-level courses.

## COURSES

### Soc. F111a. BLACK CULTURES AND SOCIETIES IN THE NEW WORLD.

An analysis of the history and structure of black societies in the New World. Cross-cultural data drawn from the Caribbean, Latin America and the United States will be used to explain the similarities and differences among the black population of the New World.

*Three semester hours.*

Mr. Remy.

### F112b. SEMINAR: POLITICAL MOVEMENTS IN BLACK SOCIETIES OF THE NEW WORLD.

A continuation of Black Cultures and Societies in the New World, with emphasis on political conflicts. Prerequisite: Soc. F111a or consent of the instructor.

*Three semester hours.*

Mr. Remy.

### F113b. SOCIAL THEORY IN A NUTSHELL.

A synthetic presentation of social theory, based on those generalizations which are widely accepted and which can form a coherent body of scientific thought. This material sacrifices the complexity of detailed theoretical issues in separate social science disciplines in order to emphasize an underlying view of human nature and its relevance to current issues. The course will challenge preconceptions about society.

*Three semester hours.*

Mr. Stanton.

### F115b. PERSPECTIVES ON MODERN AMERICAN SOCIETY.

A study of the major features of industrial society: the family, religion, politics, the economy and social stratification. Consideration of these topics will be from a comparative perspective, and also show the interdependence of the various institutions with one another.

*Three semester hours.*

Mr. Hewitt.

### F12b. SOCIAL ANTHROPOLOGY.

An analysis of primitive society with emphasis on social structure, including religion, kinship and economics. The relation between culture and personality and the processes of social change in the primitive world are explored.

*Three semester hours.*

Mr. Gerber.

### F145b. COMPARATIVE SOCIAL INSTITUTIONS.

Not offered, 1970-71.

Cultural variations of selected institutions and social groupings. Data are drawn from such regions as the Caribbean, Melanesia, Micronesia, Russia, China, Africa, and the United States.

*Three semester hours.*

Mr. Gerber.

### F165a. SOCIAL MOVEMENTS.

Social movements in the sixties. The course may be broken down into study groups on specific social movements.

*Three semester hours.*

Mr. Montano.

### F175b. SOCIOLOGY OF CONFLICT.

Not offered, 1970-71.

Is there a viable *general* theory of conflict? Parsons and functionalism vs. "the new sociology"; value-free sociology vs. "radical" sociology; social systems approach vs. historical specific analysis, social harmony vs. positive and negative social conflict.

*Three semester hours.*

Mr. Montano.

**F19a. SOCIAL STRATIFICATION.**

An analysis of the major dimensions of social stratification in contemporary society. Economic class, social status, power, class consciousness, social mobility and the consequences of class differences.

*Three semester hours.*

Mr. Hewitt.

**201b. HISTORY OF SOCIO-CULTURAL THEORY.**

A seminar in which the history of social and cultural theories is explored. Prerequisite: In addition to the usual prerequisite, consent of the instructor.

*Three semester hours.*

Mr. Stanton.

**210a. INTRODUCTION TO STATISTICAL REASONING.**

Statistical distributions, association, and sampling. The course will be taught with an IBM 1620. Prerequisite: In addition to the usual prerequisite, consent of the instructor.

*Three semester hours.*

Mr. Stanton.

**22a. ANTHROPOLOGICAL FIELD METHODS.**

A seminar on field work methods. The role of the participant-observer. Recording cohesion and disintegration. Students obtain supervised field experience.

*Four semester hours.*

Mr. Gerber.

**220a. POWER AND DECISION-MAKING.**

A theoretical and empirical consideration of the nature of power in modern society. The seminar will examine the policy-making process in the United States and Britain with reference to a variety of national issues.

*Three semester hours.*

Mr. Hewitt.

**221a. POLITICAL SOCIOLOGY.**

**Not offered, 1970-71.**

Political attitudes and voting. Party competition in democracies. Totalitarianism, political development in new states. Prerequisite: In addition to the usual prerequisite, consent of the instructor.

*Three semester hours.*

Mr. Hewitt.

**222a. SEMINAR IN SOCIAL POLICY.**

**Not offered, 1970-71.**

A review of social policy options, as developed on local, national and international levels. Examination of this material will stress the effects of social services (health, education, employment, housing, welfare) on societal forms and processes. These effects will be examined from a social planning (fiscal, administrative) as well as a social action (power) point of view. Prerequisite: In addition to the usual prerequisite, consent of the instructor.

*Three semester hours.*

Mr. Stanton.

**223a. PSYCHOLOGICAL ANTHROPOLOGY.**

An examination of theory and method in psychological anthropology. The relationship between culture and personality; basic personality types; national character; language and culture. Prerequisite: In addition to the usual prerequisite, consent of the instructor.

*Three semester hours.*

Mr. Gerber.

**235b. SEMINAR ON THE DIVISION OF LABOR.**

Theories on the division of labor. Manual and intellectual labor; productive and unproductive labor; workers and students.

*Three semester hours.*

Mr. Montano.



**275a. THE ETHNIC COMMUNITY.****Not offered, 1970-71.**

An intensive investigation of the structure of ethnic communities with consideration of customs, life cycle, folk medicine, religion, and language.

*Three semester hours.*

Mr. Gerber.

**276b. BLACK CULTURES OF THE CARIBBEAN.****Not offered, 1970-71.**

A seminar-type course in which an intensive survey is made of black cultures of the Caribbean. Special attention will be paid to problems of development and change in the Eastern Caribbean.

*Three semester hours.*

Mr. Gerber.

**28. HONORS.**

*Three semester hours.*

Staff.

**285. READINGS IN SOCIOLOGY.**

*One to three semester hours.*

Staff.

**290a. CLASSICAL SOCIOLOGICAL THEORY.**

Idealist, positivist, and Marxist approaches. Marx, Weber, and Durkheim on the methodology of the social sciences.

*Three semester hours.*

Mr. Montano.

**290b. CONTEMPORARY SOCIOLOGICAL THEORY.**

An examination of the current major sociological theories and controversies. The work of Parsons, Merton, Homans, Blau, Dahrendorf, and such topics as functionalism, the nature of the social system, reductionism, and conflict theory.

*Three semester hours.*

Mr. Hewitt.

**298b. SEMINAR IN SOCIAL ACTION.**

A critical evaluation of anthropological, sociological, and literary sources and their applications to contemporary social problems.

*Four semester hours.*

Mr. Gerber.

**299b. SEMINAR IN CLASSICAL SOCIOLOGY THEORY.**

A continuation in greater depth of Classical Sociological Theory, with emphasis on class analysis. Prerequisite: In addition to the usual prerequisite, Soc. 290a and/or consent of the instructor.

*Four semester hours.*

Mr. Montano.

**36. READINGS IN SOCIAL ANTHROPOLOGY.**

*One to three semester hours.*

Staff.

**37. READINGS IN SOCIOLOGY.**

*One to three semester hours.*

Staff.

**38. RESEARCH.**

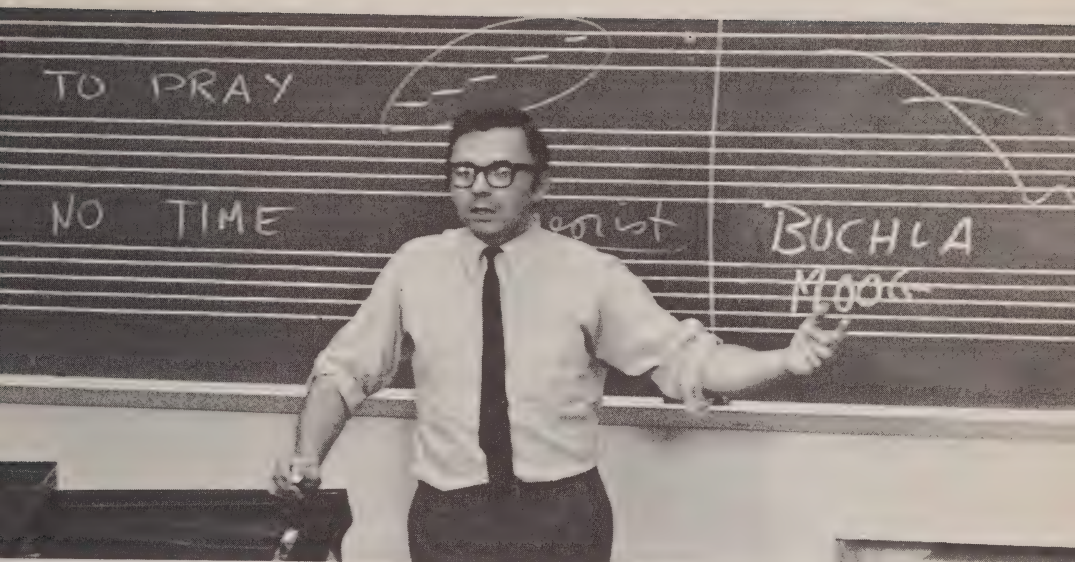
*One to three semester hours.*

Staff.

**39. THESIS.**

*Three semester hours.*

Staff.



## Theatre Art

### PARTICIPATING FACULTY

Phillip A. Graneto, M.F.A., *Assistant Professor of Theatre Art, College of the Holy Cross.*

Edward J. Herson, M.A., *Director of the Division of Theatre Art, College of the Holy Cross*

Donald W. Ilko, Ph.D., *Assistant Professor of Theatre Art, College of the Holy Cross.*

Neil R. Schroeder, Ph.D., *Associate Professor of English, Clark University.*

### UNDERGRADUATE PROGRAMS

Begun in the academic year 1968-69, the program in Theatre Art is offered through the cooperation of Clark University, the College of the Holy Cross, and Assumption College. It is designed to give the student both practical and scholarly experience in all phases of theatre, to develop theatre artists with a sound humanistic education, and to prepare them for graduate training in educational and professional theatre. Courses are open to all qualified undergraduates who are willing to devote the time and energy which are necessary for their completion.

In many cases, and this applies especially to Theatre Art majors, students who take courses in theatre will be expected as part of their course work to participate in productions by the Clark University Players Society and by the Fenwick Theatre at Holy Cross. Fenwick Theatre has enlisted a semi-professional company, Entr'Actors Guild, Inc., to act and work with students in producing the major season of five or six plays. Consequently, the annual season in Fenwick Theatre serves several purposes. It provides the students and residents of the Worcester area with theatrical productions of high quality. It also serves as a laboratory where students of Theatre Art and other interested persons may learn the arts and skills of the theatre. Finally, it is a showcase where students of the theatre, after they have developed sufficiently through their course work, may practice their art for a discerning public.

All students and faculty of the colleges participating in the program (Clark, Holy Cross, and Assumption) may apply for acting and technical positions in plays of the annual season at Fenwick Theatre. Other persons may do so by permission of Mr. Edward Herson, Director of the Fenwick Theatre, and the director of the play for which they apply.

*Registration in any course in Theatre Art may be made only by permission of the instructor.* Clark students who wish to take courses in the field should first apply to Mr. Schroeder of the Department of English at Clark. Entering freshmen who plan to take courses should see Mr. Schroeder before they register for their first year.

Many of the courses in the program will be offered on other campuses. In most cases, Clark students will be expected to supply their own transportation.

The Theatre Art major is designed around a core curriculum of basic courses with two sequences of advanced courses — one for potential actors and one for potential stage designers. Within the acting sequence allowance is made for qualified students to choose two semester courses in advanced directing.



*Core Curriculum.* All Theatre Art majors must take the following courses, preferably before their junior year: Theatre Art 10, 12, 13, and 14. In addition, all majors must take at least two of the following: Theatre Art 151, 152, and 153.

*Advanced Courses: Acting Sequence.* Normally, acting majors will complete their program by taking Theatre Art 130, 133, and 134. It should be noted that there is a Fine Arts

Especially qualified students who wish to gain training in advanced directing may, with the permission of the instructor, substitute Theatre Art 145 and 146 for Theatre Art 115 and 116.

*Advanced Courses: Design Sequence.* Normally, design majors will complete their program by taking Theatre Art 130, 133, and 134. It should be noted that there is a Fine Arts prerequisite for these courses which may be taken at any qualified school. This prerequisite will not be included among the student's major courses, but it will be included among his related courses. In exceptional cases the prerequisite may be waived.

*Related Courses.* All Theatre Art majors must take at least twenty hours of courses in related fields as follows:

1. Twelve or more hours of dramatic literature. All majors should take as many courses in dramatic literature as possible.
2. Three hours, preferably more, in history of art.
3. Any selection from the following: English, comparative literature, philosophy, fine arts, music, and in some cases, certain courses in psychology as approved by the student's adviser.

*Courses Outside the Major and Related Fields.* All Theatre Art majors must take at least thirty-six hours of courses outside the major and related fields as enumerated above. All students who plan to pursue graduate study in the theatre are advised to gain proficiency in at least one, and preferably two, modern foreign languages.

Any student who plans to go on to graduate or professional work in theatre should acquire as much professional experience as possible through participation in summer stock or similar activities.

## COURSES

### F10a. BASIC ACTING SKILLS I.

Study and intensive practice in the basic techniques of producing good voice and speech. Practice in the proper formation of the sounds of English and correction of regional accent. Laboratory in stage movement. Taught at Holy Cross.

*Three semester hours.*

Mr. Ilko.

### F11b. BASIC ACTING SKILLS II.

Further development of the techniques learned in Theatre Art 10a. Elementary work in the interpretation of a role. Taught at Holy Cross. Prerequisite: Theatre Art 10a.

*Three semester hours.*

Mr. Ilko.

### F12a. BASIC TECHNICAL THEATRE PRACTICE.

Classroom instruction in the theories and techniques of the building, painting, and lighting of stage settings; the organization and operation of production crews; and the fundamentals of make-up. Laboratory hours to be arranged. Taught at Holy Cross.

*Three semester hours.*

Mr. Graneto.

**F13a. INTRODUCTION TO STAGE DESIGN: THEORY.**

A course intended to acquaint the general student with the basic steps involved in the creation of stage settings, including a discussion of design methods such as ground plan, compositional elevation, color theory, and stage lighting. Taught at Holy Cross.

*Three semester hours.*

Mr. Graneto.

**F14a. INTRODUCTION TO PLAY DIRECTION.**

Study of the writings, both theoretical and practical, of prominent directors, followed by practice in classroom exercises or laboratory studio productions of the basic techniques of play selection, casting, scheduling and conducting rehearsals, composition, picturization, movement, rhythm, and pantomimic dramatization. Taught at Holy Cross.

*Three semester hours.*

Mr. Herson.

**88. DIRECTED READINGS.**

*Variable credit.*

Staff.

**F111b. ORAL INTERPRETATION OF LITERATURE.**

**Not offered, 1970-71.**

A course in the theory and practice of interpreting the meaning of the printed word through development of skill in the oral reading of poetry and drama. Taught at Holy Cross.

*Three semester hours.*

Mr. Herson.

**F112b. IMPROVISATIONS FOR THE THEATRE.**

A graduated system of problems and theatre games designed to train the student to free himself for concentration and spontaneous effort to create a situation imaginatively and to play a role in it. Taught at Holy Cross. Prerequisite: Basic Acting Skills I.

*Three semester hours.*

Mr. Graneto.

**113a. STYLES OF ACTING.**

Analysis of the practice of the actor's art from the Greeks to the present and of the historical, social, and aesthetic causes of the various styles. Each student will be required to perform, and possibly direct, in each of the principal styles as well as submit papers on a chosen specialty. Taught at Holy Cross. Prerequisite: Theatre Art 10a and 11b.

*Three semester hours.*

Mr. Ilko.

**115b. SCENE STUDY I.**

**Not offered, 1970-71.**

Practice to the level of class performance of roles in scenes and one-act plays. Assigned research, and analysis of a major role scene by scene. Taught at Holy Cross. Prerequisite: Theatre Art 11b, 113a, and consent of instructor.

*Three semester hours.*

Mr. Ilko.

**116b. SCENE STUDY II.**

Preparation of scenes for class and/or laboratory performance and criticism. Each student will keep a written record of the materials and techniques used in preparing the roles he plays and a critical diary of rehearsals, performances, and class evaluations of performance. Taught at Holy Cross. Prerequisite: Theatre Art 115b and consent of instructor.

*Three semester hours.*

Mr. Ilko.

**F130b. INTRODUCTION TO STAGE DESIGN: TECHNIQUE.**

An introductory course exclusively for students who have a strong interest in the visual aspects of production and are planning to continue the study of stage design. The student will be expected to master the fundamentals of mechanical perspective and other scenographic techniques such as ground plans, working drawings, and light plots for the stage. Taught at Holy Cross. Prerequisite: Theatre Art 13a; at least one course in drawing and painting, which may be taken simultaneously with the course, and/or submission of sketches or similar materials which demonstrate some talent in the graphic arts.

*Three semester hours.*

Mr. Graneto.

**133b. HISTORICAL STYLES OF STAGE DESIGN.**

Not offered, 1970-71.

Problems will be selected classics of dramatic literature representing important periods in theatre history. The student will be expected to expand his knowledge of the theatre, art, and architecture of these periods and, from that knowledge, evolve a stage design for a modern production of each play assigned. Taught at Holy Cross. Prerequisite: Theatre Art 130b, one semester of art history, and one semester of theatre history.

*Three semester hours.*

Mr. Graneto.

**134b. THEATRICAL STYLES OF STAGE DESIGN.**

Problems will include different types of theatrical entertainment such as opera, ballet, modern dance, musical comedy, and circus. Projects from this course should exhibit the designer's ability and versatility and provide a portfolio of sketches required for admission to graduate study in theatrical design. Taught at Holy Cross. Prerequisite: Theatre Art 130b.

*Three semester hours.*

Mr. Graneto.

**145a. ADVANCED PLAY DIRECTION I.**

Special topics and problems in the theory and practice of play directing. Taught at Holy Cross. Prerequisite: Theatre Art 14a and consent of instructor.

*Three semester hours.*

Mr. Herson.

**146b. ADVANCED PLAY DIRECTION II.**

A continuation of Advanced Play Direction I, but the course need not be taken in the semester immediately following Advanced Play Direction I. Taught at Holy Cross. Prerequisite: Theatre Art 14a and consent of instructor.

*Three semester hours.*

Mr. Herson.

**F151a. THEATRE HISTORY AND CRITICISM I: HISTORY OF  
THEATRE ARCHITECTURE AND SCENE DESIGN.**

A study of types of theatres, techniques of theatre architecture, and the methods, techniques, and results of stage design and costume in their historical context from the Greeks to the present. Taught at Clark.

*Three semester hours.*

Mr. Schroeder.



**F152b. THEATRE HISTORY AND CRITICISM II:** Not offered, 1970-71.  
**HISTORY OF PRODUCTION METHODS AND ACTING.**

A survey of acting, directing, and production techniques and their interaction with the audience from the Greeks to the present. The course will also study the emergence of the national theatres of Western civilization and their historical and cultural significance. Taught at Clark.

*Three semester hours.*

Mr. Schroeder.

**F153a. THEATRE HISTORY AND CRITICISM III:** Not offered, 1970-71.  
**HISTORICAL STUDIES IN WORLD DRAMA AND CRITICISM.**

A survey of the major eras of dramatic literature and criticism in Western civilization which includes a study of the major theatrical genres (drama, mime, ballet, opera, etc.) and their aesthetic and cultural significance. Taught at Clark.

*Three semester hours.*

Mr. Schroeder.

**165a. FRENCH THEATRE PRODUCTION I.**

A course designed to provide direct experience of the theatrical synthesis within which the play and the actor operate. Study of the leading theories of the theatre from Diderot to Brecht. Techniques of stage presentation, including directing, acting, stage design, and make-up. Scene study leading to the presentation of scenes from five French plays in various modes. Lab. fee: \$10.00. Taught at Assumption. Prerequisite: speaking knowledge of French and consent of instructor.

*Three semester hours.*

Mr. Plasse.

**165b. FRENCH THEATRE PRODUCTION II.**

Brief history of the great directors and actors of the French stage from Les Basochiens to Jean-Louis Barrault. Historical and critical study in depth of two French plays to culminate in their production. Lab. fee: \$10.00. Taught at Assumption. Prerequisite: speaking knowledge of French and Theatre Art 165a or consent of instructor.

*Three semester hours.*

Mr. Plasse.

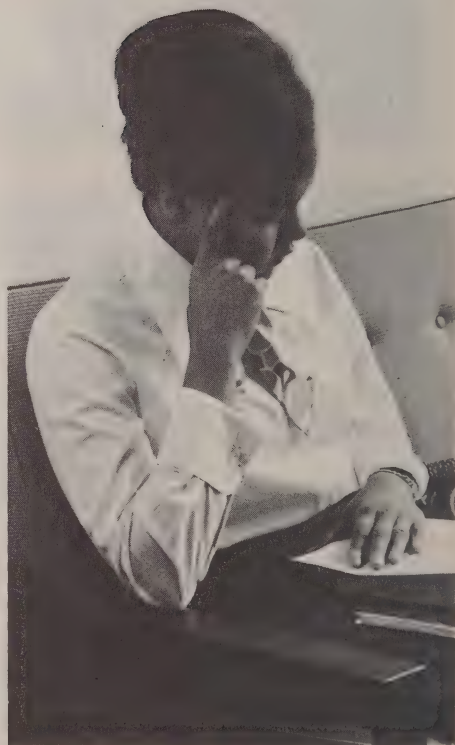




## DIRECTORIES









## THE FACULTY

Members of the faculty and officers of instruction for 1970-71 are listed alphabetically with their titles, degrees and years at Clark University. Persons no longer on the faculty but who served during the previous year are included also.

### *President*

GLENN W. FERGUSON, J.D., President. B.A., Cornell University, 1950; M.B.A., *Ibid.*, 1951; J.D., University of Pittsburgh, 1957. (1970- )

### *Emeriti*

HOWARD B. JEFFERSON, Ph.D., LL.D., L.H.D., Litt.D., President, Emeritus; A.B., Denison University, 1923; Ph.D., Yale University, 1929; LL.D., Denison University, 1948, Hillsdale College, 1952, Northwestern University, 1958; L.H.D., Colgate University, 1951, Assumption College, 1956; Litt.D., College of the Holy Cross, 1962; L.H.D., Clark University, 1967; LL.D., Emerson College, 1968. (1946-67)

SAMUEL J. BRANDENBURG, Ph.D., Professor of Economics and Sociology, Emeritus. (1923-50)

JESSE L. BULLOCK, Ph.D., Professor of Chemistry, Emeritus. (1926-59)

GUY H. BURNHAM, A.M., Instructor in Geography and Cartographer, Emeritus. (1922-66)

LYDIA P. COLBY, B.S., Registrar, Emeritus. (1932-66)

ROBERT S. ILLINGWORTH, A.M., Ed.M., Professor of Speech and Drama, Emeritus. (1931-58)

VERNON JONES, Ph.D., Professor of Educational Psychology, Emeritus. (1926-68)

HENRY D. JORDAN, Ph.D., L.H.D., Professor of English History, Emeritus. (1931-1967)

DWIGHT E. LEE, Ph.D., L.H.D., Jacob and Frances Hiatt Professor of European History, Dean of the Graduate School, Emeritus. (1927-1967)

JAMES A. MAXWELL, Ph.D., L.H.D., Professor of Economics, Emeritus. (1924-1967)

RAYMOND E. MURPHY, Ph.D., Professor of Economic Geography, Emeritus. (1946-68)

PERCY M. ROOPE, Ph.D., Professor of Physics, Emeritus. (1921-62)

SAMUEL VAN VALKENBURG, Ph.D., Professor of Geography, Emeritus. (1926-29, 1932-62)

### *Faculty and Officers of Instruction*

VERNON AHMADJIAN, Ph.D., Professor of Botany, Associate Dean of the Graduate School. A.B., Clark University, 1952; A.M., 1956; Ph.D., Harvard University, 1960. (1959-68; 1969- )

HARRY C. ALLEN, JR., Ph.D., Professor of Chemistry, Chemistry Department Chairman. B.S., Northeastern University, 1948; Sc.M., Brown University, 1949; Ph.D., University of Washington, 1951. (1969- )

ALFRED ANDEREAU, Ph.D., Assistant Professor of German. Ph.D., University of Zurich, 1964. (1968-1970)

JEREMY ANDERSON, Ph.D., Associate Professor of Geography. A.B., Yale University, 1956; M.A., University of Washington, 1959; Ph.D., 1964. (1966- )

KARL O. E. ANDERSON, Ph.D., Professor of English. A.B., Harvard University, 1927; A.M., 1928; Ph.D., 1942. (1945- )

- ROY S. ANDERSON, Ph.D., Professor of Physics, Physics Department Chairman. A.B., Clark University, 1943; A.M., Dartmouth College, 1948; Ph.D., Duke University, 1951. (1960- )
- KARL J. R. ARNDT, Ph.D., Professor of German. A.M., Washington University, 1928; Ph.D., The Johns Hopkins University, 1933. (1950- )
- DONALD BACON, Ph.D., Assistant Professor of English. B.A., Harvard College, 1962; B.A., Wadham College, Oxford University, 1964; Ph.D., Harvard University, 1970. (1969- )
- ROBERT W. BAKER, Ph.D., Professor of Psychology. A.B., Hobart College, 1947; Ph.D., Clark University, 1953. (1954- )
- GEORGE A. BALKO, JR., M.B.A., Chairman, Business Administration Program. M.E., Stevens Institute of Technology, 1947; M.B.A., New York University, 1952. (1956- )
- ROBERT A. BARAKAT, M.A., Assistant Professor of English. B.A., Suffolk University, 1961; M.A., University of Texas at El Paso, 1964. (1968-1970)
- RAYMOND E. BARBERA, Ph.D., Professor of Romance Languages. A.B., Brooklyn College, 1947; A.M., University of Arizona, 1948; Doctor en Letras, Universidad Nacional de Mexico, 1949; Ph.D., University of Wisconsin, 1958. (1953- )
- CLAUDE W. BARLOW, Ph.D., Professor of Classics. A.B., Amherst College, 1928; A.M., Indiana University, 1930; Ph.D., Yale University, 1935. (1947- )
- STEVEN BARON, Ph.D., Assistant Professor of Mathematics. B.A., McGill University, 1959; M.S. Rensselaer Polytechnic Institute, 1962; Ph.D., McGill University, 1967. (1968- )
- TILTON M. BARRON, B.L.S., Librarian. A.B., Colorado College, 1937; B.L.S., Columbia University School of Library Service, 1940. (1954- )
- THOMAS C. BARROW, Ph.D., Professor of American History. B.A., Harvard University, 1952; M.A., 1954; Ph.D., 1961. (1967- )
- MELVIN BARTON, Ph.D., Consultant to Psychological Services Center. B.A., City College of New York, 1957; M.A., 1959; Ph.D., Clark University, 1964. (1965- )
- LINDA M. B. BARTOSHUK, Ph.D., Assistant Professor (affiliate) of Physiology. B.A., Carleton College, 1960; Sc.M., Brown University, 1963; Ph.D., 1965. (1967-1970)
- JAMES F. BEARD, JR., Ph.D., Professor of English. A.B., Columbia College, 1940; A.M., Columbia University, 1941; Ph.D., Princeton University, 1949. (1955- )
- ROBERT N. BECK, Ph.D., Professor of Philosophy, Philosophy Department Chairman. A.B., Clark University, 1947; A.M., Boston University, 1948; Ph.D., 1950. (1948-67; 1968- )
- ROBERT BECK, Ph.D., Associate Professor of Psychology and Geography. (1970- )
- CLEMENS E. BENDA, M.D., Professor (affiliate) of Psychology. M.D., University of Berlin, 1922. (1958- )
- LEONARD BERRY, M.Sc., Professor of Geography. B.Sc., University of Bristol, 1951; M.Sc., 1956. (1969- )
- ROGER BIBACE, Ph.D., Professor of Psychology, Director of Psychological Services Center. A.B., University of British Columbia, 1949; Ph.D., Clark University, 1957. (1957- )
- GEORGE A. BILLIAS, Ph.D., Professor of American History. A.B., Bates College, 1948; A.M., Columbia University, 1949; Ph.D., 1958. (1962- )
- ARTHUR J. BINDMAN, Ph.D., Lecturer in Psychology. A.B., Harvard University, 1948; M.A., Boston University, 1949; Ph.D., 1955. (1966- )
- JAMES M. BLAUT, Ph.D., Professor of Geography. B.S., University of Chicago, 1950; M.S., Louisiana State University, 1954; Ph.D., 1958. (1967- )
- CHARLES S. BLINDERMAN, Ph.D., Professor of English, Director of the Summer School. A.B., New York University, 1952; A.M., 1953; Ph.D., University of Indiana, 1957. (1962- )
- DANIEL R. BORG, Ph.D., Associate Professor of European History, History Department Chairman. A.B., Gustavus Adolphus College, 1953; A.M., Yale University, 1957; Ph.D., 1963. (1961- )
- MARTYN J. BOWDEN, Ph.D., Associate Professor of Geography. B.A., University of London, 1957; M.A., University of Nebraska, 1959; Ph.D., University of California, Berkeley, 1967. (1964- )

- ROBERT N. BOYES, Ph.D., Assistant Professor (affiliate) of Biology. B.Sc., University of Toronto, 1962; M.Sc., University of Toronto, 1964; Ph.D., University of London, 1967. (1969- )
- DAEG S. BRENNER, Ph.D., Associate Professor of Chemistry. B.S., Rensselaer Polytechnic Institute, 1960; Ph.D., Massachusetts Institute of Technology, 1964. (1967- )
- JOHN J. BRINK, Ph.D., Associate Professor of Biochemistry. B.Sc., University of Orange Free State, 1955; B.Sc. (Hons.), University of Witwatersrand, 1956; Ph.D., University of Vermont, 1962. (1966- )
- DONALD M. BROVERMAN, Ph.D., Associate Professor (affiliate) in Psychology. A.B., Union College, 1952; M.A., Clark University, 1956; Ph.D., 1958. (1964- )
- DAVID W. BRUBAKER, Visiting Lecturer in French History. Special Liberal Arts Program, University of Texas at Austin, 1964; Yale University, 1964-1967; 1969-. (1969-1970)
- HERRINGTON J. BRYCE, Ph.D., Assistant Professor of Economics. B.A., Mankato State College, 1960; Ph.D., Syracuse University, 1966. (1967- )
- WILLARD D. CALLENDER, JR., Ph.D., Assistant Professor of Sociology. A.B., Bates College, 1958; M.A., University of Connecticut, 1960; Ph.D., 1967. (1966-1970)
- GEORGE CAMOUGIS, Ph.D., Associate Professor (affiliate) of Physiology. B.S., Tufts College, 1952; A.M., Harvard University, 1957; Ph.D., 1958. (1958- )
- ROBERT F. CAMPBELL, Ph.D., Professor of American History, A.B., Yale University, 1939; A.M., Columbia University, 1940; Ph.D., 1947. (1946-57; 1960- )
- WILLIAM H. CARTER, JR., Ph.D., Professor of English, English Department Chairman. A.B., Middlebury College, 1936; A.M., Harvard University, 1938; Ph.D., 1951. (1949- )
- GERALD R. CASTONGUAY, Ph.D., Assistant Professor of Music. B.Mu., Boston University, 1959; M.Mu., Hart College of Music, 1963; M.A., Harvard University, 1965; Ph.D., Rutgers University, 1970. (1970- )
- LEONARD E. CIRILLO, Ph.D., Associate Professor of Psychology. B.A., City College of New York, 1958; M.A., Clark University, 1962; Ph.D., 1965. (1968- )
- PAUL S. CLARKSON, Curator of Special Collections, A.B., Clark University, 1925; J.D., Harvard University, 1928. (1969- )
- SUSAN CLICKNER, B.Mu., Affiliate in Music. B.Mu. in Voice, Indiana University, 1955; Diploma, Curtis Institute of Music, 1959. (1970- )
- MORRIS H. COHEN, Ph.D., Professor of Government, Government and International Relations Department Chairman. A.B., University of Chicago, 1939; Ph.D., 1950 (1947- )
- SAUL B. COHEN, Ph.D., Professor of Geography, Geography Department Chairman. A.B., Harvard University, 1947; A.M., 1950; Ph.D., 1955. (1965- )
- GERARD T. CORCORAN, M.A., Registrar. B.A., University of Connecticut, 1957; M.A., 1961. (1966- )
- BRUCE C. COULL, Ph.D., Assistant Professor of Biology; B.S., Maraviau College, 1964; M.A., Lehigh University, 1966; Ph.D., 1968. (1970- )
- C. ALTON COULTER, Ph.D., Associate Professor of Physics. B.A., Howard College, 1956; M.S., University of Alabama, 1959; M.A., Harvard University, 1963; Ph.D., 1964. (1966- )
- SAMUEL P. COWARDIN III, Ph.D., Associate Professor of Fine Arts, Fine Arts Department Chairman. A.B., Harvard University, 1943; A.M., 1948; Ph.D., 1963. (1949- )
- JESSIE C. CUNNINGHAM, Ph.D., Associate Professor of English. Ph.B., University of Chicago, 1948; A.M., 1952; Ph.D., University of Chicago, 1969. (1957- )
- JOSEPH C. CURTIS, Ph.D., Professor of Zoology. B.A., Cornell University, 1951; Ph.D., Brown University, 1960. (1963- )
- JOHN M. DANSKIN, Ph.D., Professor of Mathematics. B.A., University of California, Los Angeles, 1943; M.A., University of California, Berkeley, 1948; Ph.D., 1949. (1968- )
- JOHN A. DAVIES, Ph.D., Associate Professor of Physics. B.S., University of Maryland, 1953; M.S., 1954; Ph.D., 1960. (1963- )
- HENNIE DEBOECK-DeZUTTER, M.B.A., Technical Assistant in Business Administration. M.B.A., University of Louvain, 1968. (1970- )



- TAMARA DEMBO, Ph.D., Professor of Psychology. Ph.D., University of Berlin, 1930. (1953- )
- JOSEPH DE RIVERA, Ph.D., Associate Professor of Psychology. B.A., Yale University, 1953; Ph.D., Stanford University, 1961. (1970- )
- POLLY DEWEESE, M.S., Social Work Consultant to the Psychological Service Center. A.B., Connecticut College, 1931; B.S., Simmons College, School of Social Work, 1935; M.S., Columbia University, 1948. (1969- )
- THOMAS J. DOLPHIN, A.B., Director of The Evening College. A.B., Rutgers University, 1951. (1957- )
- SERGE DURILIN, JR., M.A., Assistant Professor of Russian. (1970- )
- JAMES S. EDWARDS, A.M., Associate Professor of German. A.B., Brown University, 1936; A.M., 1938. (1947- )
- KAREN L. ERICKSON, Ph.D., Associate Professor of Chemistry. B.S., Siena Heights College, 1960; Ph.D., Purdue University, 1964. (1965- )
- WILLIAM R. FEHLNER, Ph.D., Assistant Professor of Physics. B.S., College of the Holy Cross, 1964; M.S., University of Illinois, 1965; Ph.D., 1969. (1969- )
- RICHARD B. FORD, Ph.D., Associate Professor of Comparative History. B.A., Denison University, 1957; M.A.T., Yale University, 1959; Ph.D., University of Denver, 1966. (1968- )
- THEODORE P. FRASER, Ph.D., Assistant Professor (affiliate) of French. A.B., Fordham University, 1956; A.M., Brown University, 1962; Ph.D., 1967. (1969-1970)
- EVELYN FULLER, M.Mu., Affiliate in Piano. (1969- )
- WESLEY M. FULLER, M.Mu., Associate Professor of Music. B.Mu., Oberlin Conservatory of Music, 1953; M.Mu., Boston University, 1958. (1963- )
- ROLAND F. GAUDETTE, A.B., Assistant in Physical Education. A.B., Clark University, 1962. (1967- )
- STANFORD N. GERBER, Ph.D., Assistant Professor of Social Anthropology and Sociology. B.A., University of Kansas City, 1955; M.A., 1957; Ph.D., University of Missouri, 1966. (1968- )
- HAROLD GOODGLASS, Ph.D., Professor (affiliate) of Psychology. A.B., College of the City of New York, 1939; A.M., New York University, 1948; Ph.D., University of Cincinnati, 1951. (1956- )
- ALLAN E. GOODMAN, Ph.D., Assistant Professor of Government and International Relations. (1970- )
- RICHARD J. GORDON, Ph.D., Assistant Professor of Education. A.B., Dartmouth College, 1962; M.A., Harvard University, 1963; Ph.D., New York University, 1966. (1966-1970)
- MARGARET GRAHAM, M.A., Instructor (affiliate) in Fine Arts. M.A., University of Edinburgh, 1964; Postgraduate Diploma, 1965. (1969-1970)
- ROCHELEAU Z. GRANGER, JR., A.M. in Ed., Director of Physical Education for Men. A.B., Clark University, 1938; A.M., in Ed., 1939. (1942- )
- SANTE GRAZIANI, M.F.A., Associate Professor (affiliate) of Fine Arts. B.F.A., Yale University, 1942; M.F.A., 1948. (1958- )
- ALAN F. GUMMERSON, B.A., Assistant Professor of Economics. B.A., Grinnell College, 1965. (1969- )
- IAN D. K. HALKERSTON, Ph.D., Associate Professor (affiliate) of Endocrinology. B.Sc., University of Reading, England, 1941; Ph.D., Boston University, 1960. (1967- )
- GEORGE E. HARGEST, M.B.A., Associate Professor of Economics. B.S., Temple University, 1933; M.Ed., 1937; M.B.A., Boston University, 1947. (1942-69) (1970- )
- TAMARA K. HAREVEN, Ph.D., Associate Professor of American History. B.A., Hebrew University, Jerusalem, 1960; M.A., University of Cincinnati, 1962; Ph.D., Ohio State University, 1965. (1969- )
- SIHERMAN S. HAYDEN, Ph.D., Professor of International Relations. A.B., Harvard University, 1930; LL.B., 1933; A.M., Columbia University, 1936; Ph.D., 1942. (1946- )
- EARL E. HAYS, Ph.D., Professor (affiliate) of Physics. A.B., Allegheny College, 1940; Ph.D., Northwestern University, 1949. (1961- )

- CHRISTOPHER J. HEWITT, Ph.D., Assistant Professor of Sociology. B.S., London School of Economics, 1962; M.A., Brown University, 1965; Ph.D., 1970. (1969- )
- RICHARD P. HIGHT, Ph.D., Assistant Professor (affiliate) of Geology. Ph.D., Boston University, 1958. (1967-1970)
- SERENA S. HILSINGER, Ph.D., Associate Professor of English. A.B., Douglass College, 1959; Ph.D., University of Connecticut, 1964. (1962- )
- PIERRE L. HORN, M.A., Assistant Professor of Romance Languages. B.A., Brooklyn College, 1964; M.A., Columbia University, 1965. (1969- )
- RICHARD A. HOWARD, M.A., Assistant Professor (affiliate) Computer Science.
- ROBERT M. HYDE, A.M., Executive Vice President. A.B., Rutgers University, 1947; A.M., University of Pennsylvania, 1949. (1954- )
- JOHN F. HYLAND, M.A., Assistant Professor of Romance Languages. B.A., Fordham University, 1961; M.A., Yale University. (1969- )
- JOHN O. IATRIDES, Ph.D., Lecturer in Russian History. B.A., Ohio Wesleyan University, 1953; M.A., University of Michigan, 1954; Ph.D., Clark University, 1962. (1967-1970)
- PAUL T. INGLEFIELD, Ph.D., Assistant Professor of Chemistry. B.S., University Glasgow, 1962; Ph.D., University of British Columbia, 1966. (1967- )
- HARRY L. JACOBS, Ph.D., Associate Professor (affiliate) of Physiology. B.A., University of Delaware, 1950; M.A., 1951; Ph.D., Cornell University, 1955. (1967- )
- BEHRUS JAHAN-PARVAR, M.D., Assistant Professor of Physiology. M.D., University of Goettingen, 1964. (1968- )
- H. WILLIAM JOHANSEN, Ph.D., Assistant Professor of Botany. B.A., San Jose State College, 1955; M.A., San Francisco State College, 1961; Ph.D., University of California, Berkeley, 1966. (1968- )
- WILLIAM M. KANE, M.A., Assistant Professor (affiliate) in Fine Arts. B.A., Yale University, 1956; M.A., 1959. (1969-1970)
- GERALD J. KARASKA, Ph.D., Professor of Geography. B.S., Pennsylvania State University, 1954; M.A., George Washington University, 1957; Ph.D., Pennsylvania State University, 1962. (1969- )
- BERNARD KAPLAN, Ph.D., Professor of Psychology. A.B., Brooklyn College, 1948; A.M., Clark University, 1950; Ph.D., 1953. (1955- )
- ROGER E. KASPERSON, Ph.D., Assistant Professor of Government and Geography. A.B., Clark University, 1959; M.A., University of Chicago, 1961; Ph.D., 1966. (1968- )
- ROBERT W. KATES, Ph.D., Professor of Geography. A.M., University of Chicago, 1960; Ph.D., 1962. (1962- )
- HELEN J. KENNEY, Ed.D., Associate Professor in Education. A.B., Emmanuel College, 1944; M.Ed., Boston College, 1953; Ed.D., Boston University, 1959. (1968- )
- JOHN F. KENNISON, Ph.D., Associate Professor of Mathematics, Department Chairman. B.S., Queens College, 1959; A.M., Harvard University, 1960; Ph.D., 1963. (1963- )
- FREDERICK W. KILLIAN, LL.B., Associate Professor of Sociology. LL.B., New York University, 1925; A.B., 1934. (1947-1970)
- ROBERT W. KILMOYER, JR., Ph.D., Assistant Professor in Mathematics. B.A., Lebanon Valley College, 1961; Ph.D., Massachusetts Institute of Technology, 1969. (1966- )
- DANIEL R. KILTY, Ph.D., Associate Professor of Business Administration. B.A., St. Anselm's College, 1954; M.A., University of Pennsylvania, 1958; Ph.D., Indiana University, 1965. (1969- )
- J. FANNIN KING, M.A., Associate Professor of Romance Languages, Acting Department Chairman. A.B., Pomona College, 1936; A.M., Harvard University, 1937. (1946- )
- EDWARD L. KLAIBER, M.D., Lecturer in Psychology. A.B., Syracuse University, 1952; M.D., State University of New York, 1956. (1964- )
- JOSEPH KLEIN, D.D., Lecturer in Biblical Literature. B.A., Ohio State University, 1933; Rabbi and M.H.L., Hebrew Union College, Cincinnati, 1939; D.D., Hebrew Union College, New York City, 1963. (1969- )

- WILLIAM A. KOELSCH, Ph.D., Associate Professor of American History and Geography. Sc.B., Bucknell University, 1955; A.M., Clark University, 1959; Ph.D., University of Chicago, 1966. (1967- )
- DUANE S. KNOS, Ph.D., Professor of Geography. (1970- )
- ROGER P. KOHIN, Ph.D., Associate Professor of Physics. B.Sc., Notre Dame University, 1953; Ph.D., University of Maryland, 1961. (1962- )
- WILLIAM C. KVARACEUS, Ed.D., Professor of Education and Sociology, Education Department Chairman. A.B., Boston College, 1934; Ed.M., Harvard University, 1936; Ed.D. 1943. (1968- )
- JAMES D. LAIRD, Ph.D., Assistant Professor of Psychology. B.A., Middlebury College, 1962; Ph.D., University of Rochester, 1966. (1966- )
- MITCHELL P. LICHTENBERG, M.A.T., Director, Training Complex Project, Department of Education. B.A., Swarthmore College, 1959; M.A.T., Harvard University, 1960. (1970- )
- ROBERT E. LINGNER, M.A., Assistant Professor (affiliate) of Geology. B.A., Clark University, 1954; M.A., University of Maine, 1956. (1968-1970)
- WARREN LITSKY, Ph.D., Professor (affiliate) of Microbiology. A.B., Clark University, 1945; M.S., University of Massachusetts, 1948; Ph.D., Michigan State University, 1951. (1967- )
- PAUL LUCAS, Ph.D., Associate Professor of European History. B.A., Brandeis University, 1955; M.A., Princeton University, 1957; Ph.D., 1963. (1969- )
- JAMES MACRIS, Ph.D., Professor of English and Linguistics. B.B.A., St. John's University, 1941; M.A., Teachers College, Columbia University, 1950; Ph.D., 1955. (1968- )
- GILBERT S. MARKLE, Ph.D., Assistant Professor of Philosophy. B.S., Rensselaer Polytechnic Institute, 1961; Doctorat d'Université, University of Paris, 1963; Ph.D., Yale University, 1967. (1966- )
- GEORGE F. McCLEARY, M.S., Assistant Professor of Geography. A.B. Yale, 1959; M.S., University of Wisconsin, 1963. (1966- )
- MARCUS A. McCORISON, M.S., Lecturer in American History. B.A., Ripon College, 1950; M.A., University of Vermont, 1951; M.S., Columbia University, 1954. (1967- )
- JOSEPH P. McEVOY, Ph.D., Assistant Professor of Physics. B.S., St. Joseph's College, 1959; M.S., University of Pennsylvania, 1962; Ph.D., University of London (Imperial College), 1967. (1968- )
- ALVIN H. McLEAN, M.A., Assistant Professor in English. B.A., Atlantic Union College, 1964; M.A., University of Massachusetts, 1966. (1969- )
- JOSEPH H. McSWEENEY, Ph.D., Lecturer in Genetics. A.B., College of the Holy Cross, 1951; M.S., Fordham University, 1956; Ph.D., 1960. (1967- )
- CONSTANTINE N. MICHALOPOULOS, Ph.D., Associate Professor of Economics. B.A., Ohio Wesleyan University, 1960; Ph.D., Columbia University, 1965. (1967- )
- JOHN MILLER, M.M., Assistant Professor (affiliate) of Bassoon, B.S., Massachusetts Institute of Technology; M.M., New England Conservatory of Music. (1968-1970)
- NANCY B. MISSUD, M.A., Instructor in Romance Languages. A.B., Clark University, 1963; M.A.Ed., 1965. (1966- )
- MARIO MONTANO, Ph.D., Assistant Professor of Sociology. Ph.D., University of Rome, 1967. (1969- )
- ELEANOR R. MOOSEY, Ph.D., Lecturer in Education. B.S., Massachusetts State College at Worcester, 1946; M.A., Boston University, 1948; Ed.D., 1963. (1970- )
- HAROLD T. MOODY, Ph.D., Associate Professor of Economics and Business Administration. B.S., University of California, Los Angeles, 1959; Ph.D., 1964. (1969- )
- DAVID M. MORIARTY, M.D., Professor (affiliate) of Clinical Psychology. M.D., Boston University, 1947. (1960- )
- ROBERT I. MORSE, Ph.D., Assistant Professor of Chemistry. S.B. in Chemistry; S.B. in Humanities and Sc., M.I.T., 1963; M.S., Yale University, 1964; Ph.D., 1966. (1968- )



- JOHN T. MURPHEY, B.S., Assistant Professor of Fine Arts. B.S. in Ed., Tufts University, 1959 (1965- )
- LAWRENCE H. NATH, Ph.D., Visiting Professor of Business Administration. A.B., Duke University, 1939; M.A., Columbia University, 1947; Ph.D., University of Kentucky, 1952. (1970- )
- HOWARD W. NICHOLSON, Ph.D., Professor of Economics. B.A., Oberlin College, 1942; A.M., Harvard University, 1948; Ph.D., 1950. (1958- )
- GALE H. NIGROSH, M.A.T., Instructor in Romance Languages. B.A. in French, Barnard College, 1968; M.A.T., Clark University, 1969. (1969- )
- RUDOLPH F. NUNNEMACHER, Ph.D., Professor of Zoology, Biology Department Chairman, B.S., Kenyon College, 1934; A.M., Harvard University, 1935; Ph.D., 1938. (1939- )
- DAVID OHANIAN, B.M., Assistant Professor (affiliate) of French Horn. B.M., New England Conservatory of Music, 1967. (1968-1970)
- HENRY T. O'HARA, M.B.A., Instructor in Business Administration. B.S., St. Lawrence University, 1955; M.B.A., Clark University, 1968. (1970- )
- ATTIAT OTT, Ph.D., Associate Professor of Economics. B.A., Cairo University, 1956; Ph.D., University of Michigan, 1962. (1969- )
- DAVID OTT, Ph.D., Professor of Economics, B.A., North Texas State College, 1955; Ph.D., University of Maryland, 1961. (1969- )
- GARY E. OVERVOLD, Ph.D., Assistant Professor of Philosophy. A.B., St. Olaf College, 1962; Ph.D., Claremont, 1965. (1969- )
- J. RICHARD PEET, M.A., Assistant Professor of Geography. B.S., University of London, 1961; M.A., University of British Columbia, 1963. (1967- )
- VICTOR H. PENTLARGE, M.D., Psychiatry Consultant to the Psychological Services Center. B.A., Harvard University, 1949; M.D., Harvard Medical School, 1953. (1958- )
- FERNAND G. PERON, Ph.D., Associate Professor (affiliate) of Biochemistry, Director of Steroid Training Program. B.Sc., Sir George Williams University, 1946; M.Sc., McGill University, 1950; Ph.D., 1953. (1967- )
- STANLEY J. POREDA, JR., Ph.D., Assistant Professor of Mathematics. B.S., Steven's Institute of Technology, 1965; M.S., University of Maryland; Ph.D., 1970. (1970- )
- SPENCER R. POTTER, Ed.D., Lecturer in Education, Director of Placement. B.S., Massachusetts State College, 1942; M.A. in Ed., Clark University, 1959; Ed.D., 1968. (1968- )
- JAMES F. POWERS, Ph.D., Lecturer in Medieval History. B.A., University of Virginia, 1951; M.A., 1961; Ph.D., 1966. (1967- )
- ELINOR PREBLE, B.M., Assistant Professor (affiliate) of Flute. B.M., New England Conservatory of Music, 1960. (1968-1970)
- HUGH PRINCE, Ph.D., Visiting Professor of Geography. (1970- )
- FRANK W. PUFFER, Ph.D., Associate Professor of Economics. B.S., Brown University, 1960; Ph.D., 1965. (1968- )
- CLAIRE QUINTAL, Ph.D., Associate Professor (affiliate) of French. A.B., Anna Maria College, 1952; M.A., University of Montreal, 1958; Ph.D., University of Paris, 1961. (1969- )
- RELLY RAFFMAN, A.M., George N. and Selma U. Jeppson Professor of Music, Music Department Chairman. A.B., Dartmouth College, 1943; A.M., Columbia University, 1949. (1954- )
- NEIL O. RANKIN, Ph.D., Assistant Professor of Psychology. B.E.E., Cornell, 1963; Ph.D., University of California, Berkeley, 1968. (1968- )
- KNUD RASMUSSEN, Ph.D., Associate Professor of Government. B.A., Copenhagen University, 1953; M.A., Cornell University, 1960; Ph.D., Rutgers University, 1964. (1966- )
- VIRGINIA M. RASMUSSEN, M.A., Lecturer in English. B.A., Cornell, 1948; M.A. 1951. (1969-1970)
- J. RICHARD REID, Ph.D., Professor of Romance Languages. A.B., Swarthmore College, 1935; A.M., Harvard University, 1936; Ph.D., 1943. (1944- )

- ANSELME REMY, M.A., Visiting Lecturer in Anthropology. B.A., University of Haiti, 1962; M.A. New York University, 1966. (1969- )
- JOHN T. REYNOLDS, Ph.D., Professor of Microbiology. B.S., Boston College, 1951; M.S., University of Massachusetts, 1954; Ph.D., 1962. (1956- )
- MARLIN H. ROLL, Ph.D., Visiting Lecturer in Education. B.A., State University of Iowa, 1949; M.A., 1951; Ph.D., 1959. (1969-1970)
- HARRIS ROSENKRANTZ, Ph.D., Professor (affiliate) of Biochemistry. A.B., Brooklyn College, 1943; M.S., New York University, 1946; M.S., Cornell Medical College, 1948; Ph.D., Tufts Medical School, 1952. (1959- )
- ZALMAN RUBINSTEIN, Ph.D., Professor of Mathematics, M.S., University of Jerusalem, 1958; Ph.D., University of Maryland, 1962. (1964- )
- ALBERT J. SARGENT, M.A., Instructor in Business Administration. B.S., Northeastern University, 1960; M.B.A., Clark University, 1962; M.A., 1967. (1965- )
- DAVID W. SAVAGE, Ph.D., Assistant Professor of English History. A.B., Denison University, 1959; M.A., Princeton University, 1961; Ph.D., 1963. (1967- )
- MARCIA A. SAVAGE, Ed.D., Assistant Professor of Education, Associate Dean of Students. A.B., Clark University, 1961; M.A., 1962; Ed.D., 1966. (1964- )
- WALTER SCHATZBERG, Ph.D., Associate Professor of German, Coordinator of Russian Program. B.A., St. John's College, Maryland, 1954; M.A., Johns Hopkins University, 1957; Ph.D., 1966. (1966- )
- ASHER P. SCHICK, Ph.D., Visiting Lecturer of Geomorphology. M.Sc., Hebrew University, Jerusalem, 1958; Ph.D., Hebrew University, 1963. (1969-1970)
- NEIL R. SCHROEDER, Ph.D., Associate Professor of English. A.B., Brown University, 1952; Ph.D., Yale University, 1962. (1960- )
- IRVING A. SCHWARTZ, M.A., Assistant Professor of Education and Clinical Instructor in Social Studies. A.A., Boston University, 1954; B.A., 1957; M.A., 1958. (1969- )
- GEORGE S. SHAPIRO, A.M., Instructor in Mathematics. A.B., Harvard University, 1964; A.M., 1966. (1969- )
- JOSEPH E. SHEERIN, Ph.D., Visiting Professor of Classics. B.A., Woodstock College, 1947; Ph.L., 1948; M.A., 1949; M.A., University of California, Los Angeles, 1954; Ph.D., University of California, Berkeley, 1957. (1969- )
- MALCOLM SILLS, M.D., Psychiatry Consultant to the Psychological Services Center. B.S., Middlesex University 1942; M.D., Middlesex Medical School, 1945. (1961- )
- HERBERT SILVERMAN, Ph.D., Assistant Professor of Mathematics. A.B., Temple University, 1963; M.A., Syracuse University, 1965; Ph.D., 1968. (1968- )
- PETER SLOANE, Ph.D., Associate Professor of Economics and Education. A.B., Yale University, 1947; M.A., 1958; Ph.D., 1962. (1970- )
- ROBERT J. SMITH, M.A., Lecturer in International Relations. B.S., Southern Connecticut State College, 1966; M.A., Clark University, 1967. (1969-1970)
- NORMAN SONDAK, Dr. of Eng'g, Professor (affiliate) of Mathematics. B. of Eng'g, City University of New York, 1953; M.S., Northwestern, 1954; Dr. of Eng'g, Yale University, 1958. (1969- )
- LARISA Q. SOROKIN, Ph.D., Assistant Professor of Russian. B.A., University of California, Los Angeles, 1961; M.A., 1962; Ph.D., University of Chicago, 1964. (1964-1970)
- BHAMA SRINIVASAN, Ph.D., Associate Professor of Mathematics. B.A., University of Madras, India, 1954; M.S., 1955; Ph.D., University of Manchester, England, 1959. (1970- )
- ROBERT J. STAIRS, B.S., Assistant in Physical Education. B.S., University of Rhode Island, 1956. (1959- )
- HOWARD R. STANTON, Ph.D., Professor of Sociology. B.A., University of Chicago, 1947; Ph.D., 1960. (1969- )

- DAVID STEA, Ph.D., Associate Professor of Geography and Psychology. B.S., Carnegie Institute of Technology, 1957; M.S., University of New Mexico, 1961; Ph.D., Stanford University, 1964. (1967- )
- DONALD G. STEIN, Ph.D., Associate Professor of Psychology. B.A., Michigan State University, 1960; B.S., 1962; Ph.D., University of Oregon, 1965. (1966- )
- DAVID A. STEVENS, Ph.D., Associate Professor of Psychology. A.B., University of California, 1954; M.A., University of Oregon, 1963; Ph.D., 1965. (1965- )
- BERNARD STOTSKY, M.D., Lecturer (visiting) in Education. B.S., City College of New York, 1948; M.A., University of Michigan, 1949; Ph.D., 1951; M.D., Western Reserve University, 1962. (1969-1970)
- JOHN S. STUBBE, Ph.D., Associate Professor of Mathematics. B.A., University of New Hampshire, 1941; M.S., Brown University, 1942; Ph.D., University of Cincinnati, 1945. (1949- )
- STANLEY SULTAN, Ph.D., Professor of English. A.B., Cornell University, 1949; A.M., Boston University, 1950; Ph.D., Yale University, 1955. (1959- )
- KENNETH W. TERHUNE, Ph.D., Associate Professor of Psychology. B.M.E., Clarkson College of Technology, 1954; M.A.E., Chrysler Institute of Engineering, 1956; M.A., Michigan State University, 1961; Ph.D., 1963. (1968-1970)
- NICHOLAS S. THOMPSON, Ph.D., Associate Professor of Psychology and Biology. B.A., University of California, Berkeley; Ph.D., 1966. (1970- )
- WILLIAM E. TOPKIN, Ed.D., Assistant Professor of Education, Associate Dean of Students. A.B., Clark University, 1960; M.A., 1963; Ed.D., 1967. (1964- )
- RAYMOND TOUBMAN, M.A., Affiliate in Oboe. B.M., Boston University, M.A. (1968- )
- EDWARD N. TRACHTENBERG, Ph.D., Professor of Chemistry. A.B., New York University; A.M., Harvard University, 1951; Ph.D., 1953. (1958- )
- GISELA TRIESCH, Ph.D., Lecturer in German. Ph.D., University of Frankfurt. (1970- )
- INA C. UZGIRIS, Ph.D., Associate Professor of Psychology. B.S., University of Illinois, 1957; M.A., 1960; Ph.D., 1962. (1966- )
- ROGER C. VAN TASSEL, Ph.D., Professor of Economics, Economics Department Chairman. A.B., Union College, 1947; A.M., Cornell University, 1950; Ph.D., Brown University, 1956. (1954- )
- HELEN G. VASSALLO, Ph.D., Lecturer in Zoology. B.S., Tufts University, 1953; M.S., 1955; Ph.D., Clark University, 1967. (1967-1970)
- WILLIAM VOGEL, Ph.D., Associate Professor (affiliate) of Psychology. B.A., Wesleyan University, 1955; M.A., Clark University, 1957; Ph.D., 1959. (1954- )
- JACQUES VONECHE, Ph.D., Associate Professor of Psychology. A.B., L'Institut Supérieur; M.A., University of Louvain (Belgium), Institute of Psychology, 1960; Ph.D., 1966. (1968- )
- THEODORE H. VON LAUE, Ph.D., Haitt Professor of History. B.A., Princeton University, 1939; Ph.D., 1944. (1970- )
- SEYMOUR WAPNER, Ph.D., G. Stanley Hall Professor of Genetic Psychology, Psychology Department Chairman. A.B., New York University, 1939; A.M., University of Michigan, 1940; Ph.D., 1943. (1948- )
- HENRY J. WARMAN, Ph.D., Professor of Geography. B.S. in Ed., Bloomsburg State Teachers College, 1932; Ed.M., Temple University, 1938; Ph.D., Clark University, 1945. (1943- )
- WEN-YANG WEN, Ph.D., Associate Professor of Chemistry. B.S., National Taiwan University, 1953; Ph.D., University of Pittsburgh, 1958. (1962- )
- JEFFERSON A. WHITE, Ph.D., Associate Professor of Philosophy, Dean of Undergraduate Academic Affairs. B.A., Baylor University, 1952; B.D., Yale University, 1957; A.M., 1960; Ph.D., 1964. (1961- )
- MORTON WIENER, Ph.D., Professor of Psychology. B.S., College of the City of New York, 1949; M.S., 1950; Ph.D., University of Rochester, 1953. (1957- )



- CLODIUS WILLIS, M.A.T., Assistant Professor of Romance Languages. A.B., Amherst College, 1959; M.A.T., Harvard University, 1963. (1968-1970)
- DONALD E. WISE, M.A., Assistant Professor of Economics and Business Administration. B.A., University of California, Los Angeles, 1966. (1969- )
- JOACHIM F. WOHLWILL, Ph.D., Professor of Psychology. A.B., Harvard College, 1949; Ph.D., University of California, 1957. (1958-1970)
- PETER H. WOLFF, M.D., Lecturer in Psychology. M.D., University of Chicago, 1950. (1961- )
- WALTER E. WRIGHT, M.A., Assistant Professor of Philosophy. B.A., Yale University, 1965; M.A., Vanderbilt University, 1967. (1968- )
- WILLIAM WRZESIAN, M.M., Affiliate in Clarinet. B.M., New England Conservatory of Music; M.M. (1968- )
- ALLEN M. ZWICKEL, Ph.D., Associate Professor of Chemistry. A.B., Cornell University, 1956; Ph.D., University of Chicago, 1959. (1961- )





## ACADEMIC BOARDS AND COMMITTEES, 1969-70

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>President's Cabinet</i>        | Jackson, <i>chairman</i> ; Hyde, Riorden and Wapner                                                                                                                                                                                                                                                                                                                                                  |
| <i>Personnel and Organization</i> | Administrative members ( <i>ex-officio</i> ): Jackson, S. B. Cohen, Wapner and White; Faculty members: R. N. Beck, <i>faculty officer</i> ; Hayden (Fall), Kaplan, Kates, Koelsch, Nunnemacher and Van Tassel (Spring)                                                                                                                                                                               |
| <i>Provost's Council</i>          | Wapner, <i>chairman</i> ; Ahmadjian, R. Baker, R. N. Beck (Fall), S. B. Cohen, Goldman*, Kaplan (Spring), J. Miller*, M. Savage, Topkin and White                                                                                                                                                                                                                                                    |
| <i>Administrative</i>             | M. Savage and Topkin, <i>co-chairmen</i> ; Baker, Bauman*, Corcoran, Goodney, Pierson, Plaisted, Riorden and Zerwitz*                                                                                                                                                                                                                                                                                |
| <i>Graduate Board</i>             | Jackson, <i>chairman</i> ; Ahmadjian, S. B. Cohen and Wapner ( <i>ex-officio</i> ); Allen, R. Anderson, Barrow, Beard, Borg, Callender, Carter, M. Cohen, Curtis, Davies, Gerber, Hayden, Kaplan, Kenney, Karaska, Kilmoyer, Koelsch, R. Kohin, Kvaraceus, Nicholson, Nunnemacher, Potter, Puffer, Rasmussen, Reid, Reynolds, Rubinstein, Trachtenberg, Van Tassel, Warman, Wen, Wiener and Wohlwill |
| <i>Credentials</i>                | S. B. Cohen, <i>chairman</i> ; Allen, R. Anderson, Borg, Carter, Gerber, Hayden, Kaplan, Kvaraceus, Nunnemacher, Reid, Rubinstein and Van Tassel                                                                                                                                                                                                                                                     |
| <i>Academic Council</i>           | White, <i>chairman</i> ; S. B. Cohen and Wapner ( <i>ex-officio</i> ); M. Cohen, Cunningham, Hausner*, McEvoy, Morse, Shatzberg, Wohlwill and Zylberberg*                                                                                                                                                                                                                                            |
| <i>College Board</i>              | M. Savage and Topkin, <i>co-chairmen</i> ; Baker and Wapner ( <i>ex-officio</i> ); Corcoran, K. Erickson, McCleary (Spring), Rasmussen, Schroeder and Stevens (Fall)                                                                                                                                                                                                                                 |
| <i>Admissions</i>                 | Trachtenberg, <i>chairman</i> ; K. Anderson, Baker, Bowden, R. Cohen*, Curtis, Dade*, Fulton*, Pierson, M. Savage and Topkin                                                                                                                                                                                                                                                                         |
| <i>Scholarships</i>               | Hayden, <i>chairman - Fall</i> ; Barron, Baker, Kidd, Laird ( <i>chairman - Spring</i> ), McCann*, Pierson, Puffer, M. Savage, Strickland* and Topkin                                                                                                                                                                                                                                                |
| <i>Athletics</i>                  | Stubbe, <i>chairman</i> ; Granger, Raffman, Rasmussen, D. Savage, M. Savage and Topkin                                                                                                                                                                                                                                                                                                               |
| <i>Evening College Board</i>      | Dolphin, <i>chairman</i> ; Blinderman, Brenner, Kaplan, Markle, Murphey and Van Tassel                                                                                                                                                                                                                                                                                                               |
| <i>Library</i>                    | Cowardin, <i>chairman</i> ; Curtis and Wohlwill                                                                                                                                                                                                                                                                                                                                                      |
| <i>Research</i>                   | Ahmadjian, <i>chairman</i> ; Allen, Blinderman, Curtis, K. Erickson, Nicholson and Stevens                                                                                                                                                                                                                                                                                                           |

\*Student



## SCHOLARS AND FELLOWS APPOINTED UNDER CLARK UNIVERSITY FUNDS 1969-70

### *Alumni Association Fellow*

Evans P. Bedigian, Biology, A.B., Clark University, 1969.

### *George S. Barton Fellow*

Elsa Ekblaw, Education, B.A., Wellesley College, 1969; M.A., Clark University, 1969.

### *Elnora W. Curtis Fellows*

William H. Gitlow, Government, A.B., Clark University, 1969.

Robert B. Shilkret, Psychology, B.A., Johns Hopkins University, 1965.

Jonathan L. Weber, Physics, B.S., University of Rochester, 1966.

### *Eliza D. Dodge Fellow*

Norman D. Blumberg, B.A., Colby College, 1968.

### *Joseph F. Donnelly Fellows*

John S. Gittins, Psychology, B.A., Trinity College, 1965; M.A., Clark University, 1969.

Martin S. Goldman, History, B.A., Temple University, 1962; M.A., *ibid.*, 1965.

Alfred Hecht, Geography, B.S., University of Manitoba, 1964; M.A., *ibid.*, 1968.

### *John White Field Scholar*

A. Kathleen Garvin, History, A.B., Boston College, 1960; M.A., *ibid.*, 1965.

### *Austin S. Garver Scholars*

Guido J. DeBoeck, Economics, 1st Lic, Louvain University, 1967; 2nd Lic. *ibid.*, 1968.

John B. Gorman, Education, B.A., Providence College, 1951; M.A., Northeastern University, 1966.

Karen A. Jackson, Mathematics, B.S., Virginia State College, 1969.

Italo D. Piero, Biology, B.A., University of Oregon, 1966; M.S., *ibid.*, 1969.

### *Graduate School Scholars and Fellows*

George H. Abrams, Government & International Relations, A.B., Clark University, 1969.

Glen L. Gunsalus, Physics, B.S., University of Illinois, 1964.

Gerard A. Hyland, Geography, M.A., University of Sheffield, 1967.

Leo P. Mahoney, Economics, B.S., Clark Evening College, 1968.

### *George Frisbie Hoar Scholars*

Joan J. Bott, Education, A.B., Mt. Holyoke College, 1948; M.A., Union Theological Seminary, 1949; D.B., University of Chicago, 1958.

James R. Gibson, History, A.B., Western Maryland College, 1960; M.A., Rutgers University, 1969.

Clifford L. Pelletier, Mathematics, A.B., Providence College, 1968.

Stuart I. Tischler, Economics, B.S., University of Bridgeport, 1969.

*Charles H. Thurber Scholar*

Nicolaos Leventis, Economics, Diploma, Athens Graduate School of Business and Economics, 1966.

AWARDS FROM OTHER FUNDS, 1969-70

*Committee on Geography and Afro-America (COMGA) Fellows*

Perry A. Massey, Geography, B.S., North Carolina College, 1969.

Margaret E. Stephenson, Geography, B.S., North Carolina College, 1969.

Robert C. Wright, Geography, B.S., Eastern Michigan University, 1960; M.A., *ibid.*, 1965.

*Higher Education Act 1965 Title V-C Fellows*

Joan A. Dowd, Geography, B.A., Wilson College, 1968.

Sally Jane LeMaire, Geography, A.B., Mount Holyoke College, 1968.

James Sanders, Jr., Geography, B.A., North Carolina College, 1968.

Sue C. Simonds, Geography, B.S.Ed., Fitchburg State College, 1968.

Marilyn J. Soergel, Geography, B.A., University of Cincinnati, 1968.

Margaret A. Tindal, Geography, B.S., Coppin State College, 1967.

*Massachusetts Bureau of Special Education Fellow*

William A. Philbrick, Jr., Education, B.A., Boston College, 1944; M.A.Ed., Boston College, 1951.

*National Aeronautics and Space Administration Trainees*

Elizabeth R. Clark, Mathematics, B.A., Bennington College, 1967; M.A., Clark University, 1969.

Gayle P. Orczyk, Biology, B.A., Keuka College, 1966; M.A., Clark University, 1968.

Douglas Lee Schmucker, Biology, B.S., Kenyon College, 1965; M.A., Clark University, 1968.

Jonathan L. Weber, Physics, B.S., University of Rochester, 1966.

*National Defense Education Act Title IV Fellows*

Michael C. Acree, Psychology, B.A., Oberlin College, 1968.

Bradley H. Baltensperger, Geography, B.A., University of Nebraska, 1969.

Stanley P. Baniukiewicz, Chemistry, B.S., University of Massachusetts, 1965.

Jo Ann Bennett, Psychology, A.B., University of Missouri, 1969.

Maxine Harris Bethel, Psychology, B.A., Wellesley College, 1969.

- William T. Emerson, Geography, B.A., Antioch College, 1966; M.A., University of Minnesota, 1968.
- Darrell R. Ferguson, Geography, B.S. Ed., University of Idaho, 1960; M.A., *ibid.*, 1968.
- James W. Fonseca, Geography, B.A., Bridgewater State College, 1969.
- Wilma K. Gottlieb, Psychology, B.A., Cedar Crest College, 1967.
- Stephen P. Hobart, Geography, B.A., Carroll College, 1966.
- John B. Jacobs, Jr., Geography, B.A., Clark University, 1967.
- Harel C. Lacey, Chemistry, B.Sc., Pembroke College, 1967.
- John R. Lau, Psychology, B.A., St. Joseph's College, 1963.
- John H. Long, History, A.B., Northeastern University, 1966.
- Kenneth J. Moynihan, History, A.B., Holy Cross College, 1966; M.A., Clark University, 1969.
- Robert C. Nickolson, Chemistry, B.S., University of Massachusetts, 1968.
- Mrs. Virginia L. Riorden, History, A.B., University of Alabama, 1946.
- Maribeth J. Schultze, Psychology, B.A., Wright University, 1969.
- Stephen W. Slocomb, History, B.A., Northeastern University, 1966.
- Reed F. Stewart, Geography, B.A., Amherst College, 1950; M.A., Clark University, 1963.
- John A. Trickel, History, B.A., University of Tulsa, 1964; M.A., *ibid.*, 1966.
- Raymond J. Zadzilko, History, B.A., St. Vincent College, 1969.

*National Institute of Mental Health Predoctoral Fellows*

- David J. Bearison, Psychology, B.A., Pennsylvania State University, 1965; M.A., Clark University, 1968.
- Frank Douglas, Jr., Psychology, B.A., University of California at Los Angeles, 1967.
- Elizabeth W. Lang, Psychology, A.B., University of Michigan, 1966.
- Nathanael G. Mullener, Psychology, A.B., George Washington University, 1965.
- Victor I. Zinn, Psychology, B.A., Brandeis University, 1964; M.S., Ohio University, 1968.

*National Science Foundation*

- Daniel J. Amaral, Geography (Graduate Trainee), A.B., Holy Cross College, 1966; University of Nicaragua, 1966-67.
- James B. Crawford, Psychology (Graduate Trainee Sem. I), B.S., Georgia Institute of Technology, 1967.
- Bordon D. Dent, Geography (Summer Fellow), B.S., Towson State College, 1963; M.A., U. of California at Berkeley, 1966.
- Gregory C. Giguere, Economics (Graduate Trainee Sem. I), B.A., University of Connecticut, 1969.
- Glen L. Gunsalus, Physics (Graduate Trainee), B.S., University of Illinois, 1965.
- John T. Heffernan, Economics (Science Faculty), A.B., Maryknoll College, 1954; M.Ed., Boston College, 1959; M.A., Boston University, 1965.
- Peggy A. Lentz, Geography (Graduate Fellow), A.B., Syracuse University, 1969.



- Leo P. Mahoney, Economics (Graduate Trainee, Sem. II), B.S., Clark Evening College, 1968.
- Anita J. Martel, Biology (Graduate Trainee), B.S., Bridgewater State College, 1969.
- Richard Melito, Psychology (Graduate Trainee), B.E., City College of New York, 1964.
- Caroline A. Murphy, Economics (Graduate Trainee), A.B., Regis College, 1960; M.A., Clark University, 1963.
- Jill E. Rierdan, Psychology (Graduate Fellow), A.B., Clark University, 1967.
- Joseph D. Sage, Geography (Science-Faculty), B.S., Rutgers University, 1956.
- Jeffrey J. Rosen, Psychology (Summer Fellow), B.A., George Washington University, 1964; M.A., Clark University, 1968.
- Robert B. Shilkret, Psychology (Graduate Trainee Sem. II), B.A., Johns Hopkins University, 1965.
- Gerald Wildenberg, Mathematics (Graduate Trainee), B.S., C. W. Post College, 1967; M.S., Adelphi University, 1969.
- Benjamin G. Wisner, Jr., Geography (Graduate Trainee), A.B., University of California, 1965; M.A., University of Chicago, 1966.
- Warren B. Zepp, Jr., Biology (Graduate Trainee), B.Sc., Worcester Polytechnic Institute, 1967.

### *Radcliffe Fellowship*

- Harriette L. Chandler, Government and International Relations, B.A., Wellesley College, 1959; M.A., Clark University, 1963.

## RESEARCH AND TEACHING ASSISTANTS TEACHING ASSISTANT SCHOLARS AND FELLOWS 1969-70

- Henry Aay, Geography, B.A., Waterloo Lutheran University, 1969.
- Maria Alvarez, Sociology, B.A., University of the Philippines, 1956.
- Rani Bakhru, Chemistry, B.S., Banaras Hindu University, 1967; Yale University, 1968-69.
- Mohamed Abdel-Hakk Bakr, Physics, B.Sc., Ain Shams University, 1964; M.Sc., *ibid.*, 1968.
- Stanley P. Baniukiewicz, Chemistry, B.S., University of Massachusetts, 1965.
- Anne M. Biedrzycki, Biology, B.A., Our Lady of the Elms College, 1966.
- Zelda B. Bilsey, Romance Languages, B.S., University of Massachusetts, 1969.
- Mark M. Blazis, English, B.S., Worcester State College, 1969.
- Norman D. Blumberg, Mathematics-Education, B.A., Colby College, 1968.
- Frederick Borger, English, B.A., Wesleyan University, 1965.
- Ronald Boucher, Sociology, B.S., Clark Evening College, 1968.
- Maria Luisa Valencia Bulaong, Psychology, A.B., Assumption Convent (Philippines), 1964.

- Norman T. Carpenter, Geography, B.A., Dartmouth College, 1961.
- Kang-Tsung Chang, Geography, B.S., National Taiwan University, 1965; M.A., Clark University, 1969.
- Elizabeth R. Clark, Mathematics, B.A., Bennington College, 1967; M.A., Clark University, 1969.
- Christopher Clayton, Geography, B.A., Jesus College, 1966; M.A., University of Cincinnati, 1968.
- Brenda J. Colthardt, Biology, B.A., Keuka College, 1969.
- Robert Courchesne, Romance Languages, B.A., St. Mary's College, 1967.
- Terrence E. Coyne, History, B.B.A., University of Massachusetts, 1962; M.A.Ed., North Adams State, 1968.
- Sister Lorraine Doucet, Biology, B.A., Notre Dame College, 1961; M.S., Rivier College, 1968.
- Elsa Ekblaw, Education, B.A., Wellesley College, 1949; M.A., Clark University, 1969.
- John F. Fegreus, Mathematics, B.A., Worcester State College, 1969.
- Gary R. Fennell, Biology, B.A., Clark University, 1967; M.A., Long Island University, 1969.
- William J. Fiske, Biology, B.A., Southeastern Massachusetts Technological Institute, 1969.
- Leona C. Fournier, Romance Languages, B.A., Rivier College, 1969.
- George E. Garrison, Economics, B.A., Lehigh University, 1969.
- William H. Gitlow, Government & International Relations, A.B., Clark University, 1969.
- Martin S. Goldman, History, B.A., Temple University, 1962; M.A., *ibid.*, 1965.
- David M. Goodman, History, B.A., Long Island University, 1967.
- Stephen K. Grant, Economics, B.S.B.A., Babson Institute, 1965; M.A., Northeastern University, 1967.
- Glen L. Gunsalus, Physics, B.S., University of Illinois, 1964.
- James P. Hanlan, History, Holy Cross College, B.A., 1967.
- Russell L. Houde, Biology, A.B., St. Michael's College, 1964.
- Karen A. Jackson, Mathematics, B.S., Virginia State College, 1969.
- Mark E. Johnston, English, B.A., Miami University, 1968.
- Robert K. Jordan, Jr., Economics, B.A., University of Maine, 1964; M.A., Clark University, 1968.
- In Kyu Kim, Chemistry, B.S., Seoul National University, 1962; M.S., Seoul National University, 1964.
- Mrs. Antoinette Koppen, Romance Languages, B.A., Central Missouri State College, 1969.
- Arthur Krim, Geography, B.A., Clark University, 1965; M.A., University of Chicago, 1967.
- Paul Wing-Ling Kwan, Biology, B.S., University of Maryland, 1966.
- Edmund J. Mackenberg, Psychology, B.A., University of Missouri, 1963; M.A., *ibid.*, 1965.
- Mrs. Carol Loughlin Mainville, Physics, B.S., Merrimack College, 1965; M.A., Clark University, 1968.
- Mina Makooi, Biology, B.S., Tehran University, 1962; M.A., Boston University, 1967.

- Irene M. Mauro, Sociology, B.S., Clark Evening College, 1969.
- Andrew J. Mills, Biology, A.B., Boston University, 1969.
- Joseph J. Mrotek, Biology, B.S., University of Wisconsin, 1964; M.S., *ibid.*, 1965.
- Carmen Munoz-Seca, Romance Languages, Diploma MA, Catholic Institute of Paris, 1948.
- Donald E. O'Connor, Government & International Relations, B.S., Buffalo State University College, 1964; M.A., Lehigh University, 1965.
- Clifford L. Pelletier, Mathematics, A.B., Providence College, 1968.
- Mrs. Dorothy R. Pemstein, Sociology, B.S., Clark Evening College, 1969.
- David H. Quist, Education, Sem. I, A.B., Clark University, 1965; M.A.Ed., *ibid.*, 1967.
- John P. Radford, Geography, B.A., Sheffield University, 1965; M.A., University of Maryland, 1967.
- Mrs. Margaret Ramsay, English, B.A., University of Leicester (England), 1952; Diploma, *ibid.*, 1953.
- Jeffrey J. Rosen, Psychology, B.A., George Washington University, 1964; M.A., *ibid.*, 1966; M.A., Clark University, 1968.
- Mrs. Barbara G. Rosenkrantz, History, A.B., Radcliffe College, 1944.
- Patricia A. Santowski, Romance Languages, B.A., American International College, 1969.
- Neil D. Schor, Romance Languages, B.A., Pennsylvania Military College, 1968.
- Felicisima C. E. Serafica, Psychology, B.A., University of Pennsylvania, 1952; M.A., Temple University, 1955.
- Robert B. Shilkret, Psychology, B.A., Johns Hopkins University, 1965.
- Evelyn M. Silvia, Mathematics, B.A., Southeastern Massachusetts Technological Institute, 1969.
- Robert J. Smith, Government & International Relations, B.S., Southern Connecticut State College, 1966; M.A., Clark University, 1967.
- Dennis L. Taylor, Psychology, B.A., Carleton University, 1967.
- Stuart I. Tischler, Economics, B.S., University of Bridgeport, 1969.
- Jeanne Wacht, Romance Languages, B.A., Keuka College, 1968.
- Jonathan L. Weber, Physics, B.S., University of Rochester, 1966.
- Mrs. Suzanne Bouchard Wheeler, Mathematics, A.B., Salve Regina College, 1969.
- Gregg E. Whitman, Sociology, B.A., Clark University, 1969.
- Mrs. Rebekah Wells, Education, Sem. II, A.B., Barnard College, 1957; M. Ed., Boston University, 1964.
- David P. Wilson, Chemistry, B.S., Providence College, 1968.
- John C. Wirkkala, History, B.A., University of New Hampshire, 1964; M.A., Clark University, 1966.



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| Elwyn C. Hale (1963- )                            | Piedmont, Calif.     |
| Ben H. Bagdikian, A.B., L.H.D., Litt. D. (1964- ) | Washington, D.C.     |
| Fairman C. Cowan, LL.B. (1964- )                  | Worcester, Mass.     |
| Mrs. Robert H. Goddard, A.M., Sc.D. (1964- )      | Worcester, Mass.     |
| Archie Greenberg, A.M. (1965- )                   | Miami Beach, Fla.    |
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| Francis A. Harrington, A.B. (1966- )              | Worcester, Mass.     |
| David R. Porter, A.B. (1966- )                    | Wellesley, Mass.     |
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| Chester Bland, A.M. (1969- )                      | West Hartford, Conn. |

*Members Elected by the Alumni*

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| Robert A. Nelson, Ph.D., Sc.D. (1967- )  | McLean, Va.            |
| John W. Kneller, Ph.D. (1968- )          | Brooklyn, New York     |
| Robert E. Dik, A.B. (1969- )             | Worcester, Mass.       |
| Henry A. Malkasian, LL.B. (1970- )       | Wellesley Hills, Mass. |
| John T. Miller, LL.D. (1970- )           | Washington, D.C.       |

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| Howard M. Booth, A.B. (1939-1965)        | Worcester, Mass. |
| Francis H. Dewey, Jr., LL.B. (1934-1962) | Worcester, Mass. |
| Samuel H. Dolbear, Sc.D. (1940-1961)     | Tucson, Arizona  |

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| <i>Honorary Degrees</i>                        | Howe, <i>Chairman</i> ; Bagdikian, Barrett, Cowan, Erickson, Johnson, McCune, Smith, *Ahmadjian, *Beard, *Nicholson, and *White. (Staff: Mr. Plaisted).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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Roger Bibace, Ph.D., *Director, Psychological Services Center*

Gertrude Bitter, *Purchasing Assistant*

Neil R. Schroeder, Ph.D., *Director, The Summer School*

H. Phelps Bristol, A.B., *Assistant Director of Admissions*

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Richard J. Courtney, B.S. in B.A., *Manager, University Bookstore*

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Thomas M. Dolan, M.A.Ed., *Director, The Clark Fund*

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# ACADEMIC CALENDAR FOR 1970-71

## 1970

|                        |                                                                                                                                                                                  |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Friday, September 11   | Freshman orientation begins.                                                                                                                                                     |
| Monday, September 14   | First semester registration.                                                                                                                                                     |
| Tuesday, September 15  | Classes begin.                                                                                                                                                                   |
| Monday, November 2     | Last day for receiving applications for admission to candidacy for the degree of Doctor of Philosophy in June, 1971.<br>Mid-semester reports due at Registrar's Office at 9 a.m. |
| Wednesday, November 25 | Beginning of Thanksgiving recess at close of classes.                                                                                                                            |
| Monday, November 30    | Thanksgiving recess ends at 8:30 a.m.                                                                                                                                            |
| Friday, December 18    | Beginning of Christmas recess at close of classes. End of first semester classes.                                                                                                |

## 1971

|                       |                                                                                                                                                               |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Monday, January 4     | End of Christmas recess at 8:30 a.m.<br>Study period for final examinations begins.                                                                           |
| Thursday, January 7   | Semester examinations begin.                                                                                                                                  |
| Wednesday, January 13 | Last day of examinations. Mid-year recess begins at 5 p.m.                                                                                                    |
| Monday, January 18    | January Study Period begins.                                                                                                                                  |
| Monday, February 8    | Second semester registration.                                                                                                                                 |
| Tuesday, February 9   | Classes begin.                                                                                                                                                |
| Friday, February 12   | Last day for receiving applications for admission to candidacy for the degree of Master of Arts, Master of Arts in Education, and Master of Arts in Teaching. |
| Monday, March 29      | Mid-semester reports due at Registrar's Office at 9 a.m.                                                                                                      |
| Saturday, April 3     | Beginning of spring recess at close of classes.                                                                                                               |
| Monday, April 12      | End of spring recess at 8:30 a.m.                                                                                                                             |
| Monday, May 10        | Dissertations for the degree of Doctor of Philosophy and Doctor of Education due at Registrar's Office at 9 a.m.                                              |
| Monday, May 17        | Theses for degrees of Master of Arts, Master of Arts in Education, and Master of Arts in Teaching due at Registrar's Office at 9 a.m.                         |
| Wednesday, May 19     | End of second semester classes.<br>Study period for final examinations begins.                                                                                |
| Saturday, May 22      | Semester Examinations begin.                                                                                                                                  |
| Sunday, June 6        | Commencement Day.                                                                                                                                             |

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# CALENDAR 1970

| SEPTEMBER 1970 |    |    |    |    |    |    |
|----------------|----|----|----|----|----|----|
| S              | M  | T  | W  | T  | F  | S  |
|                |    | 1  | 2  | 3  | 4  | 5  |
| 6              | 7  | 8  | 9  | 10 | 11 | 12 |
| 13             | 14 | 15 | 16 | 17 | 18 | 19 |
| 20             | 21 | 22 | 23 | 24 | 25 | 26 |
| 27             | 28 | 29 | 30 |    |    |    |

| OCTOBER 1970 |    |    |    |    |    |    |
|--------------|----|----|----|----|----|----|
| S            | M  | T  | W  | T  | F  | S  |
|              |    |    |    | 1  | 2  | 3  |
| 4            | 5  | 6  | 7  | 8  | 9  | 10 |
| 11           | 12 | 13 | 14 | 15 | 16 | 17 |
| 18           | 19 | 20 | 21 | 22 | 23 | 24 |
| 25           | 26 | 27 | 28 | 29 | 30 | 31 |

| NOVEMBER 1970 |    |    |    |    |    |    |
|---------------|----|----|----|----|----|----|
| S             | M  | T  | W  | T  | F  | S  |
| 1             | 2  | 3  | 4  | 5  | 6  | 7  |
| 8             | 9  | 10 | 11 | 12 | 13 | 14 |
| 15            | 16 | 17 | 18 | 19 | 20 | 21 |
| 22            | 23 | 24 | 25 | 26 | 27 | 28 |
| 29            | 30 |    |    |    |    |    |

| DECEMBER 1970 |    |    |    |    |    |    |
|---------------|----|----|----|----|----|----|
| S             | M  | T  | W  | T  | F  | S  |
|               |    | 1  | 2  | 3  | 4  | 5  |
| 6             | 7  | 8  | 9  | 10 | 11 | 12 |
| 13            | 14 | 15 | 16 | 17 | 18 | 19 |
| 20            | 21 | 22 | 23 | 24 | 25 | 26 |
| 27            | 28 | 29 | 30 | 31 |    |    |

# CALENDAR 1971

| JANUARY 1971 |    |    |    |    |    |    |
|--------------|----|----|----|----|----|----|
| S            | M  | T  | W  | T  | F  | S  |
|              |    |    |    |    | 1  | 2  |
| 3            | 4  | 5  | 6  | 7  | 8  | 9  |
| 10           | 11 | 12 | 13 | 14 | 15 | 16 |
| 17           | 18 | 19 | 20 | 21 | 22 | 23 |
| 24           | 25 | 26 | 27 | 28 | 29 | 30 |
| 31           |    |    |    |    |    |    |

| FEBRUARY 1971 |    |    |    |    |    |    |
|---------------|----|----|----|----|----|----|
| S             | M  | T  | W  | T  | F  | S  |
|               |    | 1  | 2  | 3  | 4  | 5  |
| 7             | 8  | 9  | 10 | 11 | 12 | 13 |
| 14            | 15 | 16 | 17 | 18 | 19 | 20 |
| 21            | 22 | 23 | 24 | 25 | 26 | 27 |
| 28            |    |    |    |    |    |    |

| MARCH 1971 |    |    |    |    |    |    |
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| APRIL 1971 |    |    |    |    |    |    |
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| MAY 1971 |    |    |    |    |    |    |
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| JUNE 1971 |    |    |    |    |    |    |
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| JULY 1971 |    |    |    |    |    |    |
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| AUGUST 1971 |    |    |    |    |    |    |
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| SEPTEMBER 1971 |    |    |    |    |    |    |
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| OCTOBER 1971 |    |    |    |    |    |    |
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| NOVEMBER 1971 |    |    |    |    |    |    |
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| DECEMBER 1971 |    |    |    |    |    |    |
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| 16            | 17 | 18 | 19 | 20 | 21 | 22 |
| 23            | 24 | 25 | 26 | 27 | 28 | 29 |
| 30            | 31 |    |    |    |    |    |

# CALENDAR 1972

| JANUARY 1972 |    |    |    |    |    |    |
|--------------|----|----|----|----|----|----|
| S            | M  | T  | W  | T  | F  | S  |
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| 16           | 17 | 18 | 19 | 20 | 21 | 22 |
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| 30           | 31 |    |    |    |    |    |

| FEBRUARY 1972 |    |    |    |    |    |    |
|---------------|----|----|----|----|----|----|
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| 13            | 14 | 15 | 16 | 17 | 18 | 19 |
| 20            | 21 | 22 | 23 | 24 | 25 | 26 |
| 27            | 28 | 29 |    |    |    |    |

| MARCH 1972 |    |    |    |    |    |    |
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| 16         | 17 | 18 | 19 | 20 | 21 | 22 |
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| APRIL 1972 |    |    |    |    |    |    |
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| MAY 1972 |    |    |    |    |    |    |
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| JUNE 1972 |    |    |    |    |    |    |
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| JULY 1972 |    |    |    |    |    |    |
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| 23        | 24 | 25 | 26 | 27 | 28 | 29 |
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| AUGUST 1972 |    |    |    |    |    |    |
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| 16          | 17 | 18 | 19 | 20 | 21 | 22 |
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| SEPTEMBER 1972 |    |    |    |    |    |    |
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| 16             | 17 | 18 | 19 | 20 | 21 | 22 |
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| NOVEMBER 1972 |    |    |    |    |    |    |
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| DECEMBER 1972 |    |    |    |    |    |    |
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*Edited By* Public Relations Office, Clark University

*Photographs By* Michael J. Novia, Clark University

*Design* HOFFMAN  
PRINTING  
*Printing* HOFFMAN  
PRINTING Publications Division  
*Binding* HOFFMAN  
PRINTING

The background of the cover is a sepia-toned photograph of a large, dark, abstract sculpture. The sculpture has several vertical, column-like structures and curved, arch-like elements. Through the arches, a landscape is visible, featuring a body of water, distant hills, and a small building with a chimney on the left. The sky is filled with soft, white clouds.

# Clark

UNIVERSITY  
BULLETIN

71-72  
GENERAL  
CATALOG

The New England Association of Colleges and Secondary Schools accredits schools and colleges in the six New England states. Membership in one of the six regional accrediting associations in the United States indicates that the school or college has been carefully evaluated and found to meet standards agreed upon by qualified educators. Colleges support the efforts of public school and community officials to have their secondary school meet the standards of membership.

August, 1971   Number 315

The Clark University Bulletin is published four times a year, in April,  
July, August and September  
Second-class postage paid at Worcester, Massachusetts.





# Clark University Bulletin

WORCESTER, MASSACHUSETTS 01610

## General Catalog 1971/72

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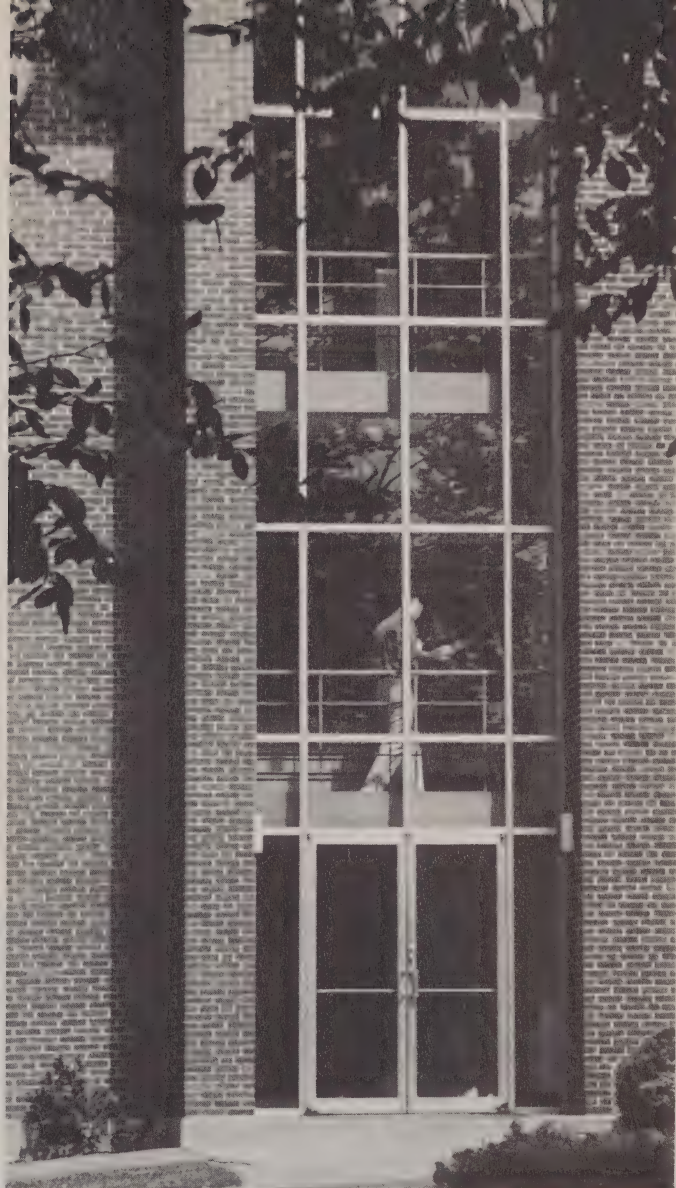
Persons interested in other information about Clark University should address the appropriate officer of administration listed below:

|                                       |                                                                    |
|---------------------------------------|--------------------------------------------------------------------|
| <i>General University Affairs:</i>    | Dr. Glenn W. Ferguson<br>President                                 |
| <i>General Academic Affairs:</i>      | Office of the Provost                                              |
| <i>Undergraduate Student Affairs:</i> | Dr. Marcia A. Savage<br>Dr. William E. Topkin<br>Deans of Students |
| <i>Admission to the College:</i>      | Mr. Richard W. Pierson<br>Director of Admissions                   |
| <i>Financial Aid:</i>                 | Mr. Robert M. Kidd<br>Director of Financial Aid                    |
| <i>Graduate School Affairs:</i>       | Dr. Roy S. Anderson<br>Dean of the Graduate School                 |
| <i>Evening College Affairs:</i>       | Mr. Thomas J. Dolphin<br>Director                                  |
| <i>Summer School Affairs:</i>         | Dr. Neil R. Schroeder<br>Director                                  |
| <i>Alumni Affairs:</i>                | Mr. James D. Van Houten<br>Director of Alumni Affairs              |
| <i>Records and Transcripts:</i>       | Mr. Gerard T. Corcoran<br>Registrar                                |
| <i>University Address:</i>            | 950 Main Street<br>Worcester, Massachusetts 01610                  |
| <i>University Telephone:</i>          | Area Code 617<br>Telephone 793-7711                                |

Clark University reserves the right to amend any administrative policy described in this Catalog without prior notice to persons who might thereby be affected. Information about expenses applies to the academic year, 1971-72.







## THE UNIVERSITY

## General Information

|                           |                                                                                                                                                                                                                          |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Corporate Name:</i>    | Trustees of Clark University                                                                                                                                                                                             |
| <i>President:</i>         | Dr. Glenn W. Ferguson                                                                                                                                                                                                    |
| <i>Incorporation:</i>     | 1887                                                                                                                                                                                                                     |
| <i>Function:</i>          | Independent university of liberal arts<br>for men and women                                                                                                                                                              |
| <i>Degrees Conferred:</i> | Bachelor of Arts<br>Bachelor of Fine Arts<br>Bachelor of Science in General Studies<br>Master of Arts<br>Master of Arts in Education<br>Master of Business Administration<br>Doctor of Education<br>Doctor of Philosophy |
| <i>Undergraduate</i>      |                                                                                                                                                                                                                          |
| <i>Day Enrollment:</i>    | 1,660                                                                                                                                                                                                                    |
| <i>Faculty:</i>           | 133 Fulltime                                                                                                                                                                                                             |
| <i>Endowment:</i>         | Book Value: \$11,500,000<br>Market Value: \$13,400,000                                                                                                                                                                   |
| <i>Library:</i>           | 300,000 volumes<br>50,000 maps and charts                                                                                                                                                                                |





# The University

Clark University is a small urban, independent, co-educational university of liberal arts and business administration, founded in 1887. With a current enrollment of 1,600 undergraduates — 930 men and 730 women — and 540 graduate students, the University is situated on a compact 35-acre campus in Worcester, the second largest New England urban center.

The University's activities include undergraduate programs leading to the bachelor's degree in the arts and sciences, graduate study to and beyond the doctorate, and university-level educational programs for area adults. These activities are carried on by four divisions: The College, The Graduate School, The Evening College and The Summer School.

As an institution, Clark is committed to scholarly excellence and intellectual creativity, faith in the ideals of liberal undergraduate education, a concern for graduate education and the values inherent in the small university. These beliefs underlie everything the University is or does, and in combination are the essentials which give Clark a unique position among the more than 2,000 colleges and universities in America.

In practice, the fact that the University has by design remained small in numbers in an age of giant universities has enabled Clark to offer its students a rare educational experience. Through a close association and partnership between the College and the Graduate School, the University effectively combines some of the best features of the small liberal arts college with the scholarly research and advanced programs of the university, to the advantage of both levels.

This exposure is enhanced further by the close personal relationships maintained at Clark between and among faculty, undergraduates and graduate students.

The College seeks to provide its students with essential knowledge and understanding through concentration in one of eighteen fields of study and the selection of a variety of courses in related or other disciplines. In the Graduate School, the Master's degree is offered in fifteen areas, and doctoral programs are available in eleven fields. A student can receive instruction leading to the Doctor of Philosophy degree in biology, chemistry, chemical physics, economics, geography, history, international relations, mathematics, physics, and psychology. A Doctor of Education degree also is offered. Master's degrees can be obtained in these fields and also in business administration, English, and government. The undergraduate may take courses in these fields, except business administration, and, in addition, in classics, comparative literature, computer science, fine arts, German, geology, linguistics, music, philosophy, Romance languages, Russian and sociology.

For the superior undergraduate, there are many opportunities to observe and participate in research. Some departments have regular programs through which outstanding undergraduates take advanced courses and participate actively in the research of the



Dr. Glenn W. Ferguson  
President of the University

department.

The University's insistence on high academic achievement, together with its unique interrelationships between the undergraduate and graduate programs, accounts in large measure for the fact that over fifty percent of the graduates of the College continue their education at graduate or professional schools. It accounts, too, for the fact that a number of Clark's graduates have earned Woodrow Wilson and Danforth Fellowships, Fulbright grants and other national awards for graduate study.

Most important, these accomplishments are significant reflections of the scholarly teaching and productive research of the Clark faculty. Over eighty per cent of its members hold the Ph.D. degree, a ratio which is among the highest in the nation. In the past few years, the faculty has published several hundred scholarly articles and has written a number of books.

In addition to its excellent academic programs, Clark University offers its students many opportunities for rewarding experiences in broad programs of co-curricular and athletic activities — both organized and informal — as well as in cultural activities of high quality both at the campus and within the Worcester community.

Admission to Clark is highly competitive, and is based on non-discriminatory standards. Tuition and other charges for 1971-1972 are approximately \$3,900, including \$2,600 for tuition and about \$1,300 for room and board. Nearly one-half of the students receive financial aid in the form of scholarships, grants, loans or part-time employment.



# The University's History

Clark was founded in 1887 as the nation's second graduate school by Jonas Gilman Clark, a Worcester merchant and businessman, and Dr. Granville Stanley Hall, the university's first president, who had been a professor of philosophy, psychology and education at The Johns Hopkins University, the nation's first graduate school.

The undergraduate segment of the University, Clark College, was established for male students in 1902. At that time the faculties of the Graduate School and the College were separate; in 1920 the undergraduate college and the Graduate School were united, and there followed a period, under President Wallace Walter Atwood, of significant educational and physical changes. The original three-year bachelor's curriculum was increased to four years; the Graduate School of Geography was founded; additions were made to



the physical plant including a men's dormitory, an athletic field, gymnasium, library tower and an auditorium; and the University became coeducational in 1941.

President Atwood was succeeded in 1946 by President Howard B. Jefferson. Under President Jefferson, Clark established a chapter of Phi Beta Kappa; the Evening College was organized; the Heinz Werner Institute of Developmental Psychology was founded; eleven new buildings were built, including two residential complexes and the Robert Hutchings Goddard Library; and a half-dozen new academic programs were established.

Dr. Jefferson retired in 1967 and was succeeded by Dr. Frederick H. Jackson. Dr. Jackson resigned July 1, 1970, and was succeeded by Dr. Glenn W. Ferguson, formerly chancellor of Long Island University and U.S. ambassador to Kenya from 1966 to 1969.





# The University's Community

Worcester, the second largest city in Massachusetts with a population of about 180,300, has nearly completed an \$85 million redevelopment project in the center of the city. A somewhat typical New England manufacturing city in appearance, Worcester is nevertheless unique in the number of educational and cultural institutions located within its boundaries and immediate suburbs.

These institutions have been organized into the Worcester Consortium for Higher Education, Inc. Students in Consortium colleges may participate in special educational, cultural and social endeavors provided by member institutions, including study in credit courses. The 11 institutions participating in the Consortium are Anna Maria College, Assumption College, Clark, Holy Cross College, Worcester Polytechnic Institute, Worcester State College, University of Massachusetts Medical School and Becker, Leicester, Quinsigamond and Worcester Junior Colleges. In addition to the colleges, a group of associated institutions participate with the Consortium in providing further enrichment to college curricula. These institutions are the Worcester Art Museum, known nationally as one of the finest small museums in America; the Worcester Historical Society; the American Antiquarian Society; the Worcester Foundation for Experimental Biology, world-famous for its role in developing the birth control pill; the Worcester Craft Center; Old Sturbridge Village; and the Worcester Science Museum.

Worcester is one hour by car from Boston, three hours from New York City, and within a few hours' drive of New England's many winter and summer resort areas.

## The University Campus

Clark University is an urban institution, located two miles from Worcester's business center. The University's 25 major buildings are situated on a 35-acre campus. Near the campus are athletic fields and the 20-acre Hadwen Arboretum.

|                            |                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Clark Hall</i>          | The first building erected on the campus was Jonas G. Clark Hall, a four-story granite and brick structure. Built in 1887, it houses the offices of the Evening College, the Placement Office, and many of the offices and classrooms of the departments of instruction.                                                                                                          |
| <i>Science Building</i>    | Clark's second oldest building is the Science Building, built also in 1887. It was the site of the experimentation and research by Dr. Robert H. Goddard, "Father of the Space Age," and Dr. Albert A. Michelson, America's first Nobel Prize winner. The building has been remodeled to provide new research and instruction facilities for the Biology and Physics Departments. |
| <i>Jeppson Laboratory</i>  | Jeppson Laboratory, completed in 1958, has modern research and instruction facilities for the Chemistry Department, and houses Johnson Auditorium, a multipurpose lecture hall seating 174 persons, and Kraus Library, a specialized collection of chemical periodicals.                                                                                                          |
| <i>The Goddard Library</i> | The University's new library, named for Dr. Robert H. Goddard, houses the University's collection of more than 300,000 volumes and has about 1,000 individual reading areas.                                                                                                                                                                                                      |
| <i>Atwood Hall</i>         | Atwood Hall contains an 800-seat auditorium, the Blue Room for smaller lectures and meetings, and the offices and classrooms of the Fine Arts Department.                                                                                                                                                                                                                         |
| <i>Geography Building</i>  | Site of America's first Graduate School of Geography, the Geography Building also houses the offices of the President, Executive Vice President and other administrative officers.                                                                                                                                                                                                |
| <i>Estabrook Hall</i>      | The Departments of German, Music, Mathematics and Russian are located in Estabrook Hall.                                                                                                                                                                                                                                                                                          |



Alumni Gymnasium provides a gymnasium seating 800 persons, shower and locker facilities for intramural and intercollegiate athletics, and the offices of the Department of Physical Education. On the second floor is the Alumni Office and Alumni Lounge, a comfortable meeting room for University organizations.

*Alumni  
Gymnasium*

This dormitory for 200 men has both double and single rooms.

*Wright  
Hall*

Bullock Hall, a women's dormitory houses 137 women students.

*Bullock  
Hall*

The first major addition to the campus under Clark's ten-year development program, this center, opened in 1964, includes Johnson Hall, a co-educational dormitory for 150 students, Sanford Hall, which houses 146 men, Dodd Hall, which houses 128 women, and the Homer P. Little Student Commons building, which contains dining facilities, lounges, and meeting and recreation rooms.

*Downing  
Residence  
Center*

A second residence complex, named in honor of Mr. Charles A. Dana of Bridgeport, Conn., opened in September, 1967. The center includes Hughes Hall, a dormitory for 150 women, a dormitory for 146 men and Dana Commons, a student center, with dining facilities and offices for student organizations.

*Dana  
Residence  
Center*

Jefferson Hall houses one of the University's dining halls, a snack bar, student lounges, a recreation room, and the University Bookstore.

*Jefferson  
Hall*

The Downing Street administrative building houses the offices of Admissions, the Deans, Registrar, Bursar, Treasurer, Business and Public Relations. The Philosophy Department also is located in this building.

*Administrative  
Building*

Near the main campus is the Conference Center, with comfortable rooms for university meetings and functions.

*Conference  
Center*

Located in the old library is the recently renovated Academic Center, housing the School of Geography, the Training Teacher Trainers Program, and the Departments of History, Government and International Relations and Sociology.

*Academic  
Center*

## The Robert Hutchings Goddard Library

Tilton M. Barron, *Librarian*

Paul S. Clarkson, *Curator of Special Collections*

Marion Henderson, *Reference Librarian*

Elizabeth Hassinger, *Catalog Librarian*

Thomas V. Mongeon, *Circulation Librarian*

Irene Walch, *Assistant Reference Librarian*

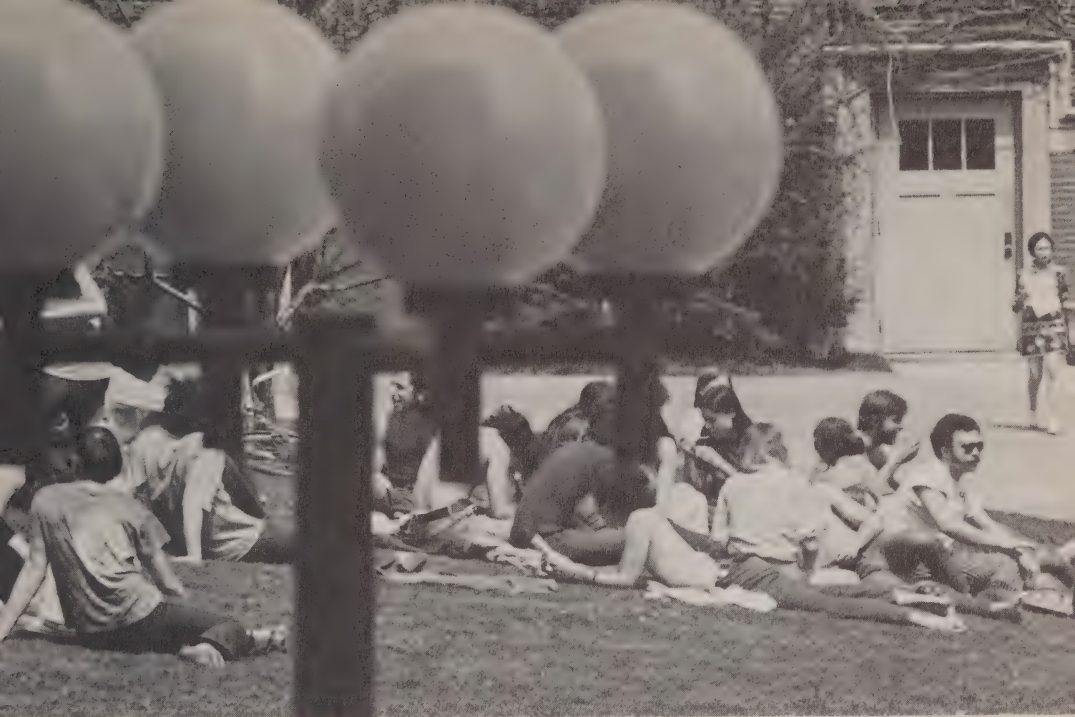
Jean F. Perkins, *Assistant to the Librarian*

The University's new Library contains over 300,000 volumes and some 50,000 maps and charts. The major part of the collection is centrally housed, and an open shelf system fosters free access to books and periodicals. Chemistry periodicals are available for reference at the Kraus Library in Jeppson Laboratory.

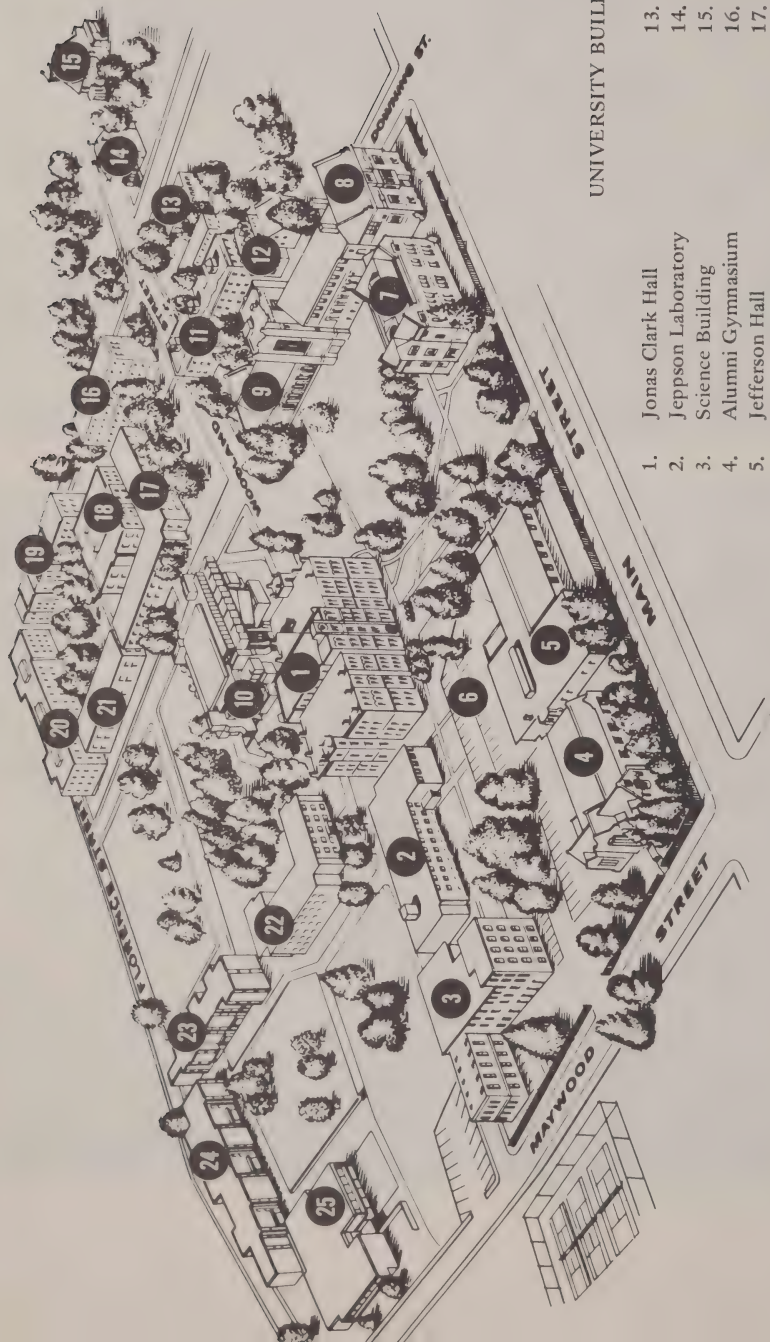
The collection reflects the history and growth of the University. The combined scholar's library of the early graduate school and the undergraduate library of Clark College have been developed through the years to serve the academic needs of the University. The richest holdings are in the fields in which graduate work has been offered for some years — biology, chemistry, economics, education, geography, government, history, international relations, mathematics, physics, psychology, and sociology. More characteristically undergraduate in content are the collections dealing with music, fine arts, language, literature, religion, and philosophy. The Library pays particular attention to major bibliographical and reference tools, and annually receives over 1,600 periodicals. The acquisition and exchange of material is coordinated with other libraries in the Worcester area.

The Robert Hutchings Goddard Library provides unusually fine quarters for the utilization of these collections. Completed early in 1969, the new building has a potential capacity of 600,000 volumes and accommodations for more than 1,000 readers, of which 65 per cent are individual study desks. Among its features are the Goddard collection and exhibit area; the Wilson Rare Book Room; special facilities for art books, record listening and microtext reading; student and faculty lounges; and an after-hours reading room.

The building is named in honor of, and as an international tribute to, Dr. Robert H. Goddard, Father of the Space Age, distinguished alumnus, and professor of physics at Clark from 1914 to 1942.







## UNIVERSITY BUILDINGS

1. Jonas Clark Hall
2. Jeppson Laboratory
3. Science Building
4. Alumni Gymnasium
5. Jefferson Hall
6. Visitors Parking
7. Geography Building
8. Academic Center
9. Atwood Hall
10. The Robert Hutchings
11. Goddard Library
12. Downing Administration Center

13. Psychology Nursery School
14. English House
15. Conference Center
16. Estabrook House
17. Wright Hall
18. Little Commons
19. Sanford Hall
20. Johnson Hall
21. Dodd Hall
22. Bullock Hall
23. Hughes Hall
24. Dana Men's Dormitory
25. Dana Commons

# The University's Recent Development and Future Plans

During recent years, in a period when higher education has been confronted with unprecedented challenges, Clark has moved ahead in accordance with comprehensive yet flexible plans and an ambitious program for their achievement. The University's objectives, defined in the course of a thoughtful self-study completed in 1961, take into account both Clark's unusual history and traditions, and the critical national need for expanded educational opportunities.

In pursuit of these goals, in 1962 the trustees established THE CLARK PROGRAM, a comprehensive, ten-year development effort to secure nearly \$21 million in new resources by 1972. Nearly \$17 million has been secured, and the University has been strengthened by two additional endowed professorships, the Robert Hutchings Goddard Library, two \$2.5 million residential centers and a new central heating plant. In the fall of 1970, the University opened a new academic center created through a \$1.3 million renovation of the former library building. In the fall of 1971, the Ruth Dodd Hall, a dormitory for women is expected to be completed.

Recognizing the need to extend and update the University's plans in the light of progress and changing conditions, the Board of Trustees established a University Planning Council in 1969. Broadly representative of faculty, students, alumni, trustees, staff and friends of the University, the Council brought the wisdom and support of all segments of the University through a comprehensive planning effort which produced a series of reports on University governance and various aspects of the University's academic program and activities. At the end of 1970, the Council submitted its tentative findings to the administration for consideration and analysis.

## *Bequests and Deferred Gifts To The University*

Bequests have always been, and will continue to be, an extremely important means of ensuring the continued growth and strengthening of independent educational institutions such as Clark University. For persons who wish to provide for the University in their estate plans, the following basic legal forms are presented with the suggestion that they be reviewed by an individual's legal counsel. Other forms are available upon request to the Office of the President.

## *Unrestricted Bequest*

"I give, devise and bequeath to Trustees of Clark University, a Massachusetts charitable corporation, located in Worcester, Massachusetts (Here insert the amount of money and/or describe the personal property or real estate)."





*Restricted  
Bequest*

"I give, devise and bequeath to Trustees of Clark University, a Massachusetts charitable corporation, located in Worcester, Massachusetts (here describe the gift to be used or the income to be used) for the following purposes (here specify the purposes for which the gift or the income therefrom is to be used)."

In addition to legacies, there are other methods of providing for the University in estate plans. Gift Annuities, Life Income Gifts, and Trusts, as defined in the Tax Reform Act of 1969, are available at Clark through its Deferred Gift Program. Specific information regarding methods of giving and tax implications under the new law may be obtained by writing to the office of the President. The University will be glad to consult, on a strictly confidential basis, with individuals and their counselors about these and other ways of enriching the University.

For purposes of making a gift by will to Clark, the University's legal corporate title is: TRUSTEES OF CLARK UNIVERSITY.







## THE UNDERGRADUATE COLLEGE



## The Academic Programs

### *Liberal Arts*

The liberal arts curriculum provides for breadth of knowledge and understanding together with the intellectual discipline resulting from concentration in a selected field. The Bachelor of Arts program at Clark possesses a large degree of flexibility permitting adaptation to a wide variety of individual interests.

### *Principles of Liberal Education*

Liberal education seeks to develop human beings who have a sense of personal identity, who are equipped and motivated to realize their intellectual potentialities and who are able to contribute to their own welfare and the welfare of others. This often involves a lifetime of learning, but a liberal arts college in a university can and should make a significant contribution to the attainment of such goals.

To have a sense of identity is to understand oneself as an organism in the natural and physical world, as a product of particular civilization or society and as a person caught up in all the joys, sorrows and perplexities of the human condition. Naturally, no course or combination of courses can insure such understanding and there is no schooling that can guarantee wisdom, but there are courses in almost every field which can make a genuine contribution to this personal educational goal.

Self-realization or the actualization of one's potentialities depends in the first instance on the acquisition and improvement of fundamental skills of language, reasoning and communication. Without these skills, it is not possible either to expand one's intellectual horizons or to master a particular intellectual discipline, pursued for its own sake or for extrinsic professional or vocational reasons. Mastery of one's own language should be matched by competence in at least one other language, and to understand the processes of reasoning in many disciplines a knowledge of mathematics including the calculus is essential. Intellectual development and understanding also rest to a great extent on an appreciation of the various methods by which knowledge is acquired, theories and hypotheses are tested and judgments are evaluated. To gain this appreciation, a student should take courses which involve various modes of inquiry, e.g., the historical approach, the experimental method, logical, textual or linguistic criticism, systems

analysis and intuitive insight. It will be difficult for a student to take such courses without at the same time familiarizing himself with important ideas in each of the traditional divisions of knowledge, the physical sciences, the social sciences and the humanities.

Communication of ideas and feelings is surely not the monopoly of language, literature and mathematics, and, therefore, one should also be familiar with the expression of ideas and feelings in music and the fine arts. It has been argued, indeed, that the arts provide an insight into "reality" that is just as valid as that provided by the sciences. In any event, one cannot realize one's potentialities for intellectual and aesthetic enjoyment without exploring one or more of these artistic areas.

To contribute to one's own welfare usually demands the choice of a vocation that is rewarding psychologically or financially or both. A liberal arts education does not become illiberal when it recognizes this fact and provides opportunities for intensive work in areas which may lead to vocational involvement or when it prepares students well for graduate and professional schools. But this emphasis on pre-professional training should always be balanced by courses which emphasize the interrelationships of fields of knowledge and the values which undergird the whole intellectual enterprise and all of human society.

To suggest a concern for the welfare of others naturally implies some value judgments that are inherent in liberal education. It is to assert that a liberally educated person will assume some responsibility in public and community affairs, and that he will contribute certain analytical abilities, specialized knowledge and mature judgment to the solution of the problems of society. To prepare for this role, a person should be familiar with some basic concepts in the social sciences and should have had some experience in problem solving and in making hard choices among alternative courses of action.

It should be re-emphasized that liberal learning is a life-time pursuit, but a student may take a giant step toward the goals of liberal education by a judicious and wide-ranging choice of courses in college. In the atmosphere of freedom which Clark University seeks to promote, this choice is left primarily to the student, who is urged to take advantage of the many opportunities offered by the University.

*Groups*

Course credit may be obtained at the undergraduate level in the following fields of instruction which, for administrative purposes, are known as "groups."

*Group A. Science and Mathematics:* Biology, chemistry, experimental psychology, geology, mathematics and physics.

*Group B. Social Sciences:* Economics, education, geography, government, history, international relations, linguistics, philosophy, psychology and sociology.

*Group C. Language and Literature:* Greek, Latin, English, French, German, Spanish, Russian, and comparative literature.

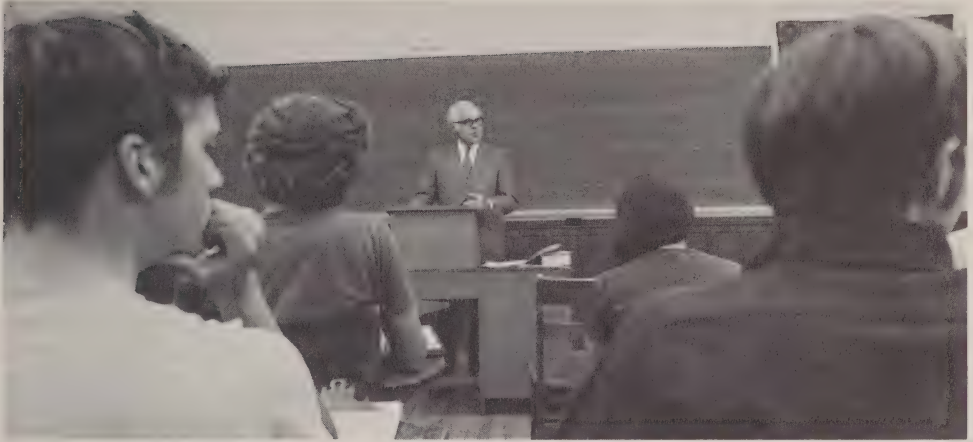
*Group D. Fine Arts:* Art, music, and theatre arts.

*Majors*

A student may major in biology, chemistry, economics, English, geography, German, government, history, international relations, mathematics, music, philosophy, physics, psychology, Romance languages, or sociology. A major in fine arts is offered through a cooperative program with the School of the Worcester Art Museum. A major in theatre art is offered through a program given in cooperation by Clark University, the College of the Holy Cross, and Assumption College. Courses in classics, education, geology, and Russian are offered, but majors are not available. A student may also elect to design his own major. Proposals for a self-designed major require the approval of the Dean of the College and the Undergraduate Academic Board.







Freshmen and transfer students must attend an induction program held on the campus for several days before the academic year begins. During this period, placement examinations and other tests are given and students attend individual and group conferences in preparation to register for a program of studies.

#### *Induction*

At induction and during the freshman year, students are provided the opportunity to meet in groups and individually with faculty members in order to obtain advice regarding course program and related matters. A particular faculty adviser may be assigned upon request. Toward the end of the freshman year students are asked to indicate intended major and their preference for adviser from the major department, and advising responsibility at that point is assumed primarily by the various academic departments. Ample opportunities for academic and other advice are available for those students seeking it.

#### *Academic Advising*

Each student is required to register for a specific program of courses at the start of every semester. The student is given notice in advance of the dates on which registration is required. Failure to register within the announced period occasions a late registration fee.

#### *Registration*

Placement in advanced courses is determined by individual performance on special departmental placement examinations or, in some instances,

#### *Advanced Placement*

on the Advanced Placement and Achievement Tests of the College Entrance Examination Board. College credit for certain courses completed in high school may also be granted toward the bachelor's degree on the basis of the College Entrance Examination Board Advanced Placement Tests.

*Normal  
Programs*

The undergraduate normally carries a full program of from 12 to 17 semester hours inclusive each semester. In general, a course meets three times weekly. Laboratory periods are usually three hours long. Students should consult their faculty adviser or major department when questions of course or program selection arise. Permission to carry a reduced or expanded program must ordinarily be secured from the College Board.

*Undergraduate  
Programs*

Freshmen may choose any course designated by the department as open to freshmen.

Sophomores may elect any course designated by numbers beginning with the numeral 1, indicating the course is primarily for undergraduates. They are not admitted to courses designated by numbers beginning with the numeral 2, except by permission of the instructor and the department chairman concerned, to whom the student must present evidence of high class standing and/or adequate preparation.

Juniors and seniors may elect any courses designated by numbers beginning with 1 or 2, indicating courses which are primarily for undergraduates or for advanced undergraduates and graduate students. The selection by juniors and seniors of these courses is subject to any conditions stated in the course description.

Under special conditions and with the approval of the Chairman of College Board and the Dean of the Graduate School in each case, seniors who rank in the upper third of their class may be admitted to courses designated by numbers beginning with the numeral 3, indicating courses which are primarily for graduate students.

*January  
Term*

A three to four week period immediately following the mid-year recess is set aside for special projects. These projects include both credited and non-credited activities. Programs of extra-curricular activities, including athletics, drama, music, and lectures, continue as usual during January Term. For further information consult the January Term catalogue

published separately.

Some departments offer readings or special projects courses which may be entered with the permission of the instructor concerned. No student, however, may register for more than eight semester hours of such courses during a given semester or for more than twenty-four semester hours of such courses during his college career.

*Readings or  
Special  
Projects  
Courses*

A student may earn the Bachelor's degree in less than four academic years through a combination of Advanced Placement credit, an expanded program, credited work during January Term and attendance at Summer Schools.

*Accelerated  
Programs*

Credit toward a degree for study at a summer school other than the Clark Summer School must be approved by the Registrar no later than Registration Day of the following semester. Students are strongly advised to confer with the Registrar prior to taking summer school courses to assure acceptability of credit toward the Clark degree.

*Summer School  
Courses Other  
Than Clark's*

A student whose grade point average for any semester is 2.3 or better may register without special permission for a program of more than 18 but no more than 20 semester hours for the following semester.

*Expanded  
Programs*

A senior whose graduation within the academic year depends on the completion of an expanded program during that year may register for more than 18 but no more than 20 semester hours.

Clark participates in the Washington Semester program of the American University in Washington, D.C. Under the program, a small number of superior students may be nominated to attend the program, usually in the junior year, studying United States government in the nation's capital. Though any student may be interested in the program, the opportunity should be particularly attractive to students majoring in government, international relations, history, economics or sociology. A credit of 15 semester hours is given for the program toward the Bachelor's degree at Clark. Inquiry and application should be made to the chairman of the Department of Government and International Relations.

*Washington  
Semester  
Program*



*Junior Year  
Abroad*

In cooperation with such organizations as The Experiment In International Living, The Institute of European Studies, the Jacob Hiatt Institute in Israel and several American colleges and universities, Clark offers its students the opportunity of spending all or a portion of their junior year abroad. These and other programs of foreign study involving academic credit must have prior approval of the College Board.

*Partial  
Programs*

Under special circumstances, students may be permitted to register for a semester program of less than 12 semester hours. Such students are designated as part-time students.

*Special  
Students*

Special students register for such programs as they agree upon in consultation with the instructors concerned.

## Requirements for a Bachelor's Degree

*General  
Requirements*

Course Requirements: All College regulations concerned with credit toward a degree are expressed in terms of semester hours. In undergraduate courses, a semester hour as a unit of credit normally implies one class meeting of approximately fifty minutes in duration, and one laboratory exercise of two or three hours duration per week or between two and three hours of outside preparation per week, throughout one semester.

The standard course carries four semester hours, but individual courses may be credited at more or less than this standard.

*Residence:*

Normally at least one half of the total number of credits required for the Bachelor's degree as well as at least one-half of the total number of credits taken for the fulfillment of the major must be taken at Clark University. Of these no fewer than thirty of the last sixty semester hours must be completed at Clark. Permission for a student to take all or part of his work during the senior year at another institution may be granted, by the College Board only, in exceptional circumstances, especially when an unusual educational opportunity is presented.

Clark University is now in the process of moving from a standard five course, fifteen credit load to a standard four course, sixteen credit load. To reflect this change the total number of credits required for graduation will be as follows:

*Total  
Credit  
Requirements*

|                                          |                    |
|------------------------------------------|--------------------|
| Class of 1972                            | 122 semester hours |
| Class of 1973                            | 124 semester hours |
| Class of 1974                            | 126 semester hours |
| Class of 1975 and all succeeding classes | 128 semester hours |

Major: A departmental major consists of from forty to fifty semester hours chosen from courses designated by the department for the purpose. At least half but no more than three-quarters of these semester hours must be in the major subject; the remaining hours must be in related fields of study as designated by the department. No department may require a student to take more than fifty semester hours in the major and related fields, but a student may take more than fifty semester hours if he meets the other requirements for graduation. A grade point average of at least 2.0 must be attained in at least forty semester hours of courses in the major and related fields.

*Major  
Requirements*

Mathematics 12 is normally a requirement for all students intending to major in Group A — Science and Mathematics.

Self-designed majors must involve comparable numbers of hours. A student must take and pass courses equaling at least 36 semester hours outside the Group (A, B or C-D) in which he is majoring or alternatively (at the direction of his major department) outside those major and related fields or courses designated for this purpose by his major department and approved by the Undergraduate Academic Board.

*Other  
Requirements*

## Academic Regulations

Reports on the work of each student are made at the end of each semester. At the time of final registration each full-time student must elect one of two reporting patterns for each of his courses, unless the option has been explicitly restricted for that course. First, he may elect

*Grades*

to receive a letter grade, with or without one of the modifying symbols plus and minus. The grades are A, B, C, and No Record. Second, he may elect to receive the symbol P indicating successful completion of the course or No Record. A report of Incomplete may be permitted at the discretion of the Faculty member only when sickness or some other unavoidable circumstance prevents completion of the course.

Every student will have a *grade point average* entered on his permanent record. This average is computed by multiplying the credit in semester hours of each graded course by a grade point or numerical equivalent of the grade for that course, adding the totals, and dividing the result by the total number of semester hours taken by the student on a graded basis during that semester. The grade points used for calculation of the averages are as follows:

$$A^+ = 4.3$$

$$A = 4.0$$

$$A^- = 3.7$$

$$B^+ = 3.3$$

$$B = 3.0$$

$$B^- = 2.7$$

$$C^+ = 2.3$$

$$C = 2.0$$

$$C^- = 1.7$$

No Record reports do not appear on the permanent record and are not considered in computation of the g.p.a. Students carrying less than 12 hours are not eligible to receive a g.p.a.

A record of incomplete incurred in the first semester must be made up no later than the following April 1; if incurred in the second semester or summer term, it must be made up no later than the following October 15. If a course is not completed within the specified time, the record of incomplete is changed to one of No Record.

### *Election of the Pass Option*

The availability of the Pass option in virtually all courses is designed to help minimize the competitive aspects of grading for those who find competition harmful for learning. Some students may wish to elect most of their courses on this basis.

All students should remember that the great majority of graduate and professional schools have expressed a preference for graded transcripts and encourage applicants to have many graded courses. Pre-professional students and those for whom graduate school is a goal should exercise



caution in employing the Pass option.

A department may, with the approval of the Undergraduate Academic Board, designate certain courses which may be taken under only one of the two reporting options.

*Restriction  
of Option*

Unless a student indicates in writing to the Deans of Undergraduate Student Affairs that he wishes it not to be done in his case, information concerning academic performance will be released upon request to high schools attended by the student, to scholarship sources and to prospective employers.

*Reporting  
Grades to  
Outside  
Sources*

A student may withdraw from any course at any time during the first four weeks of classes, regardless of the grade he has thus far attained in that course, providing that, after withdrawal, he is carrying no fewer than twelve semester hours.

*Withdrawal  
From  
Courses*

At any time after the first four weeks of classes and up until two class-weeks before the beginning of the final examination period, the Chairman of the College Board may permit a student to withdraw from a course with no record providing that after withdrawal he is carrying no fewer than twelve semester hours.

Students are urged to consult with the Deans of Students if he intends not to complete a course for a P or a grade so that his standing as a full-time student can be insured.

A student may enter a course without special permission, unless such permission is required, anytime up to final registration at the end of the second week of classes. Between the second week and mid-semester he may enter with the permission of the instructor and without petition.

*Course  
Changes*

All students who have not been required to withdraw at the end of a given semester will be promoted if they have satisfactorily completed the following semester hours:

*Classification  
of Students*

|                        |              |
|------------------------|--------------|
| To the sophomore class | 24 sem. hrs. |
| To the junior class    | 56 sem. hrs. |
| To the senior class    | 88 sem. hrs. |

*Probation* A student whose accumulated credits at the end of any semester are less than 10, (or less than 8 in the case of a freshman) will be reminded by the Dean that he is in jeopardy of being required to withdraw.

*Dismissal* A student may be required to withdraw from the College if he fails to complete successfully the following number of credits in two successive semesters:

|          |          |
|----------|----------|
| Freshman | 20 hours |
| Others   | 24 hours |

*Examinations* Final examinations are given at the end of each semester in many College courses. Approximately one week is set aside for each examination period and an attempt is made to distribute the examinations for any individual student throughout this period. Absence from a final examination, except for the most compelling reasons, may result in no record in the course. Other examinations and tests may be given at any time during the semester at the convenience of the instructors.

*Class Attendance* The College has no class attendance requirements. However, instructors have the prerogative of establishing such requirements for their own courses.

*Leaves of Absence* A student who is in good standing may apply to the College Board for a leave of absence, after which he may return to the University without formal application for readmission.



## Honors and Awards

### *Departmental Honors*

A student may elect a program leading to a bachelor's degree with honors in a particular subject at the beginning of the junior year and, in some cases, at the beginning of the senior year. Under this plan, the department appoints an honors adviser who assists the student in planning a unified program of courses for the junior and/or senior years. The program may include a maximum of twenty-four semester hours in which the student works with a large measure of independence under the supervision of the adviser. In the senior year, the student must pass a comprehensive examination given by the department.

Students may apply in writing to their major department for permission to take honors work, not later than May 1 in the sophomore year or, in some departments, in the junior year. Department approval is necessary for admission to such work. In exceptional cases and in certain departments, application may be made and admission approved by the department concerned as late as the first two weeks of the senior year but only with consent of the College Board.

Admission to an honors program does not relieve the student from any of the standing regulations. A student's candidacy for honors will be terminated at the end of any semester in which he has not maintained a standard satisfactory to the department in which he is doing honors work. If candidacy is terminated for any reason, the amount of credit to be allowed for honors courses will be determined by the College Board in consultation with the major department.

The department may recommend the student's graduation with honors, high honors or highest honors, the recommendation to occur at the conclusion of the honors program.

The Society of Phi Beta Kappa, founded at the College of William and Mary in 1776, is dedicated to the recognition and encouragement of outstanding scholarly achievement in liberal studies. The Clark Chapter, Lambda of Massachusetts, was established in 1953. Each year, a limited number of juniors and seniors are elected to membership on the basis of distinction in programs which are clearly liberal in character, with due consideration of evidence, both formal and informal, of high scholarship and creativity.

### *Phi Beta Kappa*



*Other  
Honorary  
Societies*

*Omicron Delta Epsilon:* National Honor Society in Economics.

*Delta Phi Alpha:* National Honor Society in German.

*Gamma Theta Upsilon:* National Honor Society in Geography.

*Phi Sigma Tau:* National Honor Society in Philosophy.

*Sigma Pi Sigma:* National Honor Society in Physics.

*Psi Chi:* National Honor Society in Psychology.

## Tuition and Other Charges

*General  
Information*

Undergraduate tuition, fees and other charges for 1971-72 are listed below. Charges for the Evening College and the Summer School can be found in their respective catalogs. Tuition, fees and other charges for graduate students are listed under the catalog section on The Graduate School.

Tuition, board, dormitory charges and certain fees are due and



payable one week prior to the beginning of each semester. (These dates for 1971-72 are *September 6* for the first semester and *January 31* for the second semester.) No one is permitted to register for any semester until all financial obligations have been satisfactorily arranged with the University. A penalty fee is levied for late registration and late payment of charges.

Tuition for each semester is based on a normal program of 12 or more semester hours. Students who enroll for less than the normal program are charged at the rate of \$110.00 per semester hour.

#### *Tuition*

Special students also are charged at the rate of \$110.00 per semester hour.

Beginning in 1968, the University merged a large number of special fees formerly charged separately for laboratories, matriculation, graduation, etc. into a single uniform consolidated fee of \$25.00 a semester. This fee is charged to all matriculated students regardless of the number of semester hours.

#### *Consolidated Fee*

Withdrawals are arranged in the Deans of Students Office. A student who officially withdraws in writing during the first week of any semester is allowed a refund of 80 per cent on tuition; during the second week, 60 per cent; during the third week, 40 per cent; during the fourth week, 20 per cent; after the fourth week there is no refund. The Consolidated Fee and Activities Fee are refunded by the same formula. There is no refund on other charges, except board, when a student withdraws from the University.

#### *Refund*

When a student has left, but not withdrawn from the University on the advice of a doctor within the first four weeks of a semester, and a decision is made later that the student must withdraw, tuition refund is made retroactive to the date of the doctor's recommendation, based on the schedule described above. A detailed statement of the refund policy may be obtained in the General Office.

All undergraduates are required to pay a \$25.00 deposit to cover minor charges, such as property damage, which may be incurred during the year. They are billed each year for whatever charges are incurred; the

#### *Contingency Deposit*

balance is refunded upon completion of their studies.

A dormitory deposit of \$50.00 is required each spring of upperclassmen to reserve a place in a dormitory. It is credited toward the dormitory charges. The deposit is forfeited if the student does not enroll for the specified semester.

*Dormitory  
Deposit*

A fee of \$37.50 per semester, levied and administered by the Student Council, is required of all matriculated undergraduates. It pays for admission to and participation in a wide range of cultural and recreational activities.

Student Activity Fee

A fee of \$15.00 must accompany the application for admission to the College. It is not refundable.

Application  
Fee

A deposit of \$200.00 is required of applicants when they accept the University's offer of admission. It is credited toward charges for the first semester. The deposit is forfeited if the student does not enroll for the specified semester.

Admission  
Deposit

A deposit of \$200.00 is required of all students planning to return to the University for their sophomore, junior or senior years. It is payable by *July 1*, and is credited toward charges for the fall semester. The deposit is forfeited if the student does not enroll for the specified semester.

*Tuition  
Deposit*

Deposit for keys may be required of the student for entrance to buildings, laboratories, personal lockers or mail boxes.

*Key Deposit*

### SUMMARY OF TUITION AND OTHER CHARGES

|                             |                        |
|-----------------------------|------------------------|
| Full Program                | \$1300.00 per semester |
| (12 or more semester hours) |                        |

### Tuition

\$ 25.00 per semester

Consolidated  
Fee

\$240.00 to \$310.00 per semester

### Board



|                             |                                                                                                                                                                                                                                                                                  |                                   |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| <i>Dormitory</i>            | Room rent (single)                                                                                                                                                                                                                                                               | \$330.00 to \$380.00 per semester |
| <i>Charges</i>              | Room rent (double)                                                                                                                                                                                                                                                               | \$280.00 to \$330.00 per semester |
| <i>Activities Fee</i>       |                                                                                                                                                                                                                                                                                  | \$37.50 per semester              |
| <i>Other Fees</i>           | Application (undergraduate)                                                                                                                                                                                                                                                      | \$ 15.00                          |
|                             | Health and Accident Insurance                                                                                                                                                                                                                                                    | \$ 33.00 per year                 |
|                             | Transcripts                                                                                                                                                                                                                                                                      | \$ 1.00                           |
|                             | (no charge for first one)                                                                                                                                                                                                                                                        |                                   |
| <i>Deposits</i>             | Admission (Freshmen)                                                                                                                                                                                                                                                             | \$200.00                          |
|                             | Tuition (Upperclassmen)                                                                                                                                                                                                                                                          | \$200.00                          |
|                             | Dormitory                                                                                                                                                                                                                                                                        | \$ 50.00                          |
|                             | Contingency (see page 35)                                                                                                                                                                                                                                                        | \$ 25.00                          |
| <i>Identification Cards</i> | Identification cards are issued each year to all students without charge. This card is your official college identification and should be carried at all times. Loss should be reported immediately to the Purchasing Office. There is a \$3.00 replacement charge for lost IDs. |                                   |

## Student Services

|                     |                                                                                                                                                                                                                                                                              |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Dining Halls</i> | Dining halls in Little Commons, Jefferson Hall, and Dana Center are operated for the convenience of students and staff of the University. Service is cafeteria style. The snack bar in Jefferson Hall is open to all members of the Clark community.                         |
| <i>Dormitories</i>  | Resident undergraduates may be required to live in University operated dormitory facilities. Residents of each dormitory determine the visiting hours for members of the opposite sex and there are no curfews in any of the dormitories.                                    |
| <i>Infirmary</i>    | The University Infirmary provides for minor medical services to all students and temporary in-patient care for resident students. A nurse and a part-time physician are in attendance. Other physicians, other health specialists, and hospitals are available in Worcester. |

*Health and  
Accident  
Insurance*

Subscription to a low-cost health and accident insurance plan covering ordinary medical expenses not covered by the University is urged of all students unless they are similarly protected by other insurance.

*Psychological  
Services  
Center*

There is a Psychological Services Center which is part of the doctoral training program in Clinical Psychology. In keeping with the training functions of the program some psychological services (testing, psychotherapy, etc.) are available. Every effort is made to refer students to an appropriate resource for help in academic or personal adjustment.

*Career  
Planning and  
Placement  
Center*

Students and alumni of the University may use the services and facilities of the Career Planning and Placement Center, which include: a library of graduate school directories and catalogs; vocational testing; information on destinations of Clark graduates in careers and acceptance to graduate study; on-campus interviews with representatives of employing organizations and complete lifetime placement service. Vocational counseling services may involve giving information related to curriculum choice and vocational possibilities.

## Student Life

The Clark community is a liberal environment in which students are regarded as citizens fully participating in rights and liberties and, therefore, expected to take primary responsibility for the personal and social as well as the intellectual aspects of their lives. Making an assumption of maturity in students, the University operates with a minimum of social regulations.

*Student  
Government  
and  
Participation  
In Institutional  
Decision  
Making*

The Student Council, elected by the student body each spring, is an active influence in the social, cultural and political activities of the campus. It is concerned with general campus governance, and disburses the funds raised by the student activities fee, which it levies, among the various student organizations.

Students are represented on several important University committees, and have ready, less formal daily access to faculty and administration which enables them to play an important role in the making of

policy and the effecting of changes.

Students publish *Scarlet*, a weekly newspaper; *Helicon*, a literary magazine; and *Pasticcio*, a yearbook. A campus radio station, WCUW, broadcasts approximately 70 hours per week.

*Communications*

Noted scholars, musicians, artists, performing groups and public figures, sponsored by the University and various campus groups, are brought to Clark for lectures, performances and concerts.

*Cultural  
Events and  
Activities*

Campus musical groups open to student participation include the University Chorale, Instrumental Ensemble, and the Chamber Chorus.

The Clark University Players Society presents dramatic offerings with student casts.

The Clark University Cinema and other campus groups present foreign and domestic films, both conventional and experimental in nature. Student-produced experimental films are also occasionally presented.

The city of Worcester also offers cultural opportunities, such as a Musical Festival in the fall featuring the Detroit Symphony Orchestra, and the Community Concert Series. The Worcester Art Museum, world famous for its outstanding collections, sponsors numerous lectures, movies and concerts. Neighboring academic institutions also sponsor programs which are available to members of the Clark community.

*Social  
Activities  
and  
Organizations*

Dances and a variety of concerts are sponsored by the student Social Affairs Board. Fall and Winter Weekends are two major social events; smaller dances and parties are provided by two fraternities, both of which own houses near the campus. An on-campus, student run Coffee House in the Dana Commons sponsors a variety of programs.

Each year student organizations are formed which reflect the current interests of the student body and thus, rise and fall in popularity according to those interests. There are student organizations affiliated with academic departments, such as Physics, Psychology and German clubs, and others related to hobbies or interests, such as the Chess Club, Pre-Law Club, Photography Club, and Craft Studio. Religious organizations include the Clark Christian Association, the Newman Club and

*Campus  
Organizations*



Hillel Counselorship. Scarlet Key, an honorary service society open to men and women, organizes tours for campus visitors and in other ways aids in the hosting of University guests and the introduction of new students to the campus.

*Social  
Action  
Activities*

Many Clark students are concerned about issues of war and peace, civil rights and liberties, pollution and poverty. Frequently they participate in national programs and in community action groups and initiate campus organizations, lectures, discussions and debates to confront these critical issues. Student-organized social action groups include a Birth Control Information Center, Draft Information Services, Environmental Action Committee for Civil Liberties, a Tutorial Service, and a Black Student Union.

## Physical Education and Athletics

Programs are designed to stimulate and encourage students to wider participation in physical activities to promote health and mental efficiency and lead to continuing participation throughout life. Participation is voluntary.

*Men's  
Programs*

Men may choose activities in the following areas:

1. *Intercollegiate Athletics*

For men with a reasonably high level of skill and a well defined and strong interest in athletic competition, intercollegiate schedules at the Varsity and Freshman levels are arranged in baseball, basketball, golf, eight-oared shells, soccer, tennis, track and cross-country.

*Eligibility*

Students carrying less than a full program of studies are ineligible to participate in organized extracurricular competitive athletics unless the reduced program permits graduation at the end of the year in which the program is carried. A student transferring with advanced standing from another four-year college is ineligible for one calendar year from the date of registration at Clark to participate in any varsity sport. Special students are not normally entitled to participate in competitive intercollegiate sports.



Clark University is a member of the National Collegiate Athletic Association, the Eastern College Athletic Conference, the New England College Athletic Conference and numerous sports associations.

*Association  
Memberships*

*2. Intramural Athletics*

The opportunity to gain some of the benefits of participation in competitive athletics is offered to all students through organized intramural competition in touch football, basketball, volleyball, tennis, handball, table tennis, paddle rackets, and softball.

Students may participate in archery, badminton, basketball, fencing, field hockey, golf, horseback riding, tennis, softball, volleyball and in several dance activities, including folk, square and modern dancing. Women use their own gymnasium for practice but have the use of the Alumni Gymnasium for games with outside organizations.

*Women's  
Programs*

## Admission

### *Freshman Admission*

Clark University welcomes applications for admission from men and women without regard to race, creed, color, or national origin. Selection is competitive and is based primarily on academic promise as indicated by secondary school performance, recommendations, and Scholastic Aptitude Test scores. Secondary considerations include unusual strengths and particular accomplishments.

### *Entrance Requirements*

In general, the completion of a four-year secondary school program or its equivalent is required for admission to the freshman class. Although Clark does not have an early admission program, applications will be considered from outstanding students in their junior year of secondary school who have the unqualified and enthusiastic recommendation of their college counselors. Official records of all secondary schools attended must be submitted.

A minimum of 16 acceptable units of credit is required for admission to the freshman class. Such programs typically include four years of English; two or more years of any foreign language studied; two or more years of mathematics (three or more for those planning a science or mathematics major); at least one year each of social studies and natural science (more laboratory work for those planning a science major); and other credit electives, including the arts, recognized in the secondary school curriculum.

All applicants must arrange by January of their final year of secondary school to take and to submit the results of the Scholastic Aptitude Test as administered by the College Entrance Examination Board. Achievement Tests are not required. Candidates who have studied French or Spanish are advised that Achievement Tests in these subjects are used for placement and appropriate test results should be submitted.

Further information concerning these testing programs may be obtained from the applicant's secondary school guidance counselor or from the College Entrance Examination Board. The College Entrance Examination Board may be addressed in the East at Post Office Box 592, Princeton, New Jersey 08540; in the Far West at Post Office Box 1025, Berkeley, California 94701.

Candidates for admission wishing a campus tour or interview are asked to write or call the Admissions Office for detailed information concerning appointments. An interview, however, is not required.

Candidates for admission are encouraged to submit their applications as early as possible during the first semester of their final year of secondary school. All applications must be received by *February 1*. *Early decision* candidates must file complete applications by *November 1*. An application fee of \$15.00, non-refundable, must accompany each application unless a waiver is being requested.

### *Applications*

Time of notification of admission to the incoming freshman class is normally on or about April 15. Students who have applied for *early decision* will be notified on or about December 1.

### *Notification of Admission and Deposit*

Upon receipt of a formal offer of admission a student must indicate acceptance of the offer by making an admission deposit of \$200.00, non-refundable, to reserve a place within the incoming freshman class. This deposit will be credited towards the charges for the first semester.

All single freshmen not living with their families must live in residence within University operated dormitory facilities. Rooms are assigned during the summer prior to the arrival of the freshman class. Inquiries concerning living arrangements should be sent to the Office of the College.

### *Housing Arrangements*

Clark University will consider applicants for transfer from four-year colleges and universities and from two-year colleges. Normally, only those students seeking entrance in the fall and at the junior level are considered. The application deadline is April 15.

### *Transfer Applicants*

All applicants for transfer are required to submit evidence of honorable dismissal, complete transcripts of all previous academic records, including the results of all College Entrance Examination Board tests taken, and such other information as the Admissions Committee may request.

### *Transfer Requirements*

Credit is normally given for courses previously taken at accredited colleges or universities if these courses are comparable to those offered

### *Transfer Credit*



within the Clark University curriculum. Credit for courses previously taken at non-accredited colleges is granted only on a provisional basis to be evaluated upon successful completion of two semesters of full-time work at Clark. No credit is given for any course completed with a grade lower than C-minus.

Evaluation of credits for college courses completed elsewhere is made prior to or at the time of a student's first registration at Clark and is used in planning his course program and in classifying him provisionally as a freshman, sophomore, or junior. A maximum of 60 credits may be accepted toward a degree at Clark. Two academic years are usually minimum for completion of degree requirements.

#### *Foreign Students*

While Clark welcomes applications from foreign students, it is unable to provide financial aid to cover a foreign student's educational expenses. The University does, however, participate in the LASPAU Program partially funded by the Agency for International Development. Each foreign student accepted for admission must have medical insurance, preferably that available from the Institute of International Education.

Applications from foreign students must be submitted by February 1. Foreign students whose native tongue is not English must be able to satisfy the University requirements for proficiency in the English language.

#### *Special Students and Auditors*

Persons who are not degree candidates, but who wish to take advantage of the opportunities for study provided by the University and who give satisfactory evidence of adequate preparation for the work which they wish to undertake, may apply for admission under the status of Special Student. Enrollment in this category is limited. Inquiries concerning this category of student should be addressed to the Office of the Registrar.

At the discretion of the administrative officers of the University, Auditors, registered for attendance but not for credit, may be admitted. They are required to pay the regular tuition rates and the matriculation fee, but are not enrolled as students.

Persons who wish to be candidates for a degree, or who wish to take advantage of the opportunities for study provided by the Summer School or the Evening College, are invited to send inquiries concerning admission, programs available, or other questions to the Director of the Evening College or Summer School.

*Summer  
School  
and Evening  
College*

## Undergraduate Financial Aid

Financial aid is allocated on the basis of financial need and academic performance and consists of scholarships, grants, loans and part-time employment. The Committee on Financial Aid assesses each student's financial situation on the basis of the computation system established by the College Scholarship Service of the College Entrance Examination Board, Princeton, New Jersey. This assessment takes into account family income and assets, age of parents, financial commitments to other dependents and members of the family, and other special circumstances. It is expected by the University that a student's resources for education will come first from family resources and his own savings and earnings.

*General  
Information*

Expenses at Clark vary from student to student, but an average student expense budget for 1971-1972 is as follows:

*Costs*

|                                               | <i>Resident</i> | <i>Commuter</i> |
|-----------------------------------------------|-----------------|-----------------|
| Tuition                                       | \$2,600         | \$2,600         |
| Comprehensive Fee                             | 50              | 50              |
| Student Activities Fee                        | 75              | 75              |
| Contingency Fee (Freshmen and Transfers only) | 25              | 25              |
| Insurance (Optional)                          | 33              | 33              |
| Board (20 Meal Plan and Room)                 |                 |                 |
| (Double Room — Average)                       | 1,212           | 450             |
| Books and Supplies — Average                  | 150             | 150             |
| Clothing, Laundry, Recreation, Incidentals    | 450             | 400             |
| Travel                                        | *               | 100             |
| Total                                         | \$4,595         | \$3,883         |

\*A reasonable allowance should be budgeted for travel between University and student's home.

*Method of Application*

1. **Freshmen** — To be considered for financial aid, a candidate for the Freshman Class must complete the following steps:
  - a. File an application for admission with the Director of Admissions by February 1 of the year he intends to enter, indicating on this application, by checking the appropriate box, his intent to apply for financial assistance.
  - b. File a completed Parents' Confidential Statement with the College Scholarship Service by February 1 and direct that a copy be forwarded to Clark University. The Parents' Confidential Statement may be obtained from the secondary school guidance office.
  - c. Residents of Massachusetts are expected to make application to the Board of Higher Education for a Massachusetts State Scholarship. Information is available from secondary school guidance counselors. Students applying from out of state should investigate the opportunity of using their State Scholarship Program at Clark.

*Renewal of Awards*

Upperclassmen must reapply annually for financial aid by submitting an updated Parents' Confidential Statement to the College Scholarship Service prior to March 1. In addition students seeking renewal of their allocation must submit a Clark "Supplement to the Upperclass Financial Aid Request" to the Financial Aid Office by March 1. Forms may be obtained from the Financial Aid Office of the University.

2. **Transfers** — Students applying for admission with Advanced Standing and who are requesting financial aid must submit the Parents' Confidential Statement to the College Scholarship Service prior to April 15. Because of limited funds, it is suggested that students in this category explore alternative methods of financing their education at Clark.

Applications for financial aid cover all scholarships, grants, loan funds — including National Defense Student Loans — and College Work-Study funds administered by the University. Because the University's financial aid funds are limited, not all students who apply for aid can be given an award. Students who have financial need and do not

receive financial aid from the University at the time of admission should review their financial resources before accepting an offer of admission to the University inasmuch as a student should not ordinarily expect to receive an award as an upperclassman if he has not received an award as a freshman. Each year the University is able to help only a few new upperclass applicants for assistance.

The policy of the University is to renew aid to a freshman who continues to demonstrate financial need as an upperclassman. Financial aid awards may be adjusted from year to year as a student's need varies.

The Committee on Financial Aid expects that all financial aid recipients will contribute to the cost of their education from summer and part-time employment.

Financial aid awards have reasonable average-earnings expectations factored in. It is also expected that students on financial aid will not maintain or operate motor vehicles while in attendance at the University unless an automobile is needed for commuting purposes or in the earning of income.

The University administers financial aid by a method called "packaging"; i.e., each recipient is normally expected to meet part of his financial need through employment and the use of loan funds, with the balance coming from the University or some other source in the form of scholarship or grant. Packaged financial aid awards are typically composed of a combination of two or more of the following four categories.

*Jonas Clark Scholarships* — A portion of the University's income is reserved for this purpose. Gifts from Alumni, parents and friends provide additional, important sources of funds for scholarship purposes.

*Federal Educational Opportunity Grants* are part of a Federal program of assistance to college students. They are grants, not loans, and are renewable on a yearly basis. The grants are specifically designated for students from low income families.

*National Defense Student Loan Program* provides funds for long-term loans which bear no interest until a student has completed full-time study. Normally a person borrowing from these funds will repay the amount over a period of up to ten years. National Defense Student Loans are granted on the basis of financial need and available



funds. All National Defense Loan commitments are made contingent on Congressional appropriation of funds annually for this program.

*College Work-Study Program* — There are Federal funds to provide employment for students who have financial need. Application for employment through the College Work-Study Program may be made at the Financial Aid Office.

Further details on all forms of financial aid at the University may be obtained by writing to or visiting the Financial Aid Office.

*Supplementary  
Sources of  
Assistance*

1. *Guaranteed Loan Program* — A Federal loan program designed primarily for middle income families is available and administered in the various states by local banks. Undergraduates may borrow up to \$1,500 yearly (depending upon the State); graduate students may borrow up to \$1,500 yearly. Students whose families have adjusted incomes of under \$15,000 will have a portion of the interest paid by the Government. Since the program is not completely operative in all states at this time, it would be advisable for students interested in this program to contact their local banks for complete information.
2. *State Scholarships* — Information pertaining to State Scholarship Programs is available at secondary school guidance offices.
3. *Veterans' Benefits* — Veterans admitted to Clark should communicate with their local Veterans Administration Office requesting an application for a program of education under Public Law 89-358.
4. *Student Employment* — *Part-time employment for undergraduates* is coordinated through the Financial Aid Office. There is work available in the various offices and departments of the University. Applications are available from the Financial Aid Office.

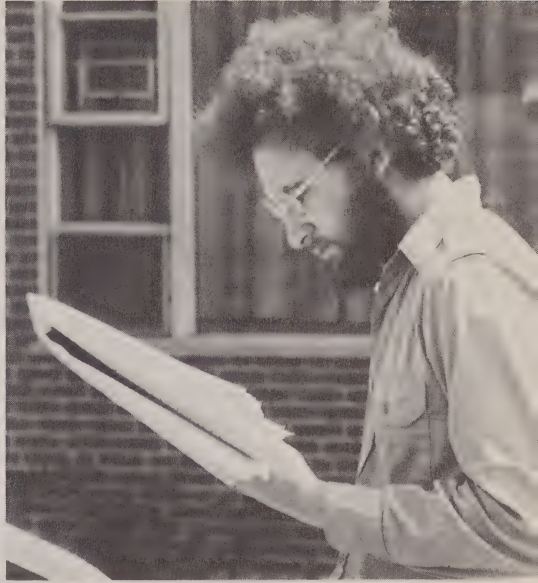
Most scholarships awarded by the University are designated Jonas Clark Scholarships. Funds for these scholarships are derived from University income and from endowed funds as follows: Because of the various restrictions placed on these funds, it is the policy of the College to select eligible recipients. Students should not apply directly for them.

The Reginald Bryant Allen Fund  
 The Alumni Group Scholarship  
 The B'nai B'rith Scholarship  
 The Gertrude and William Brodie Award  
 The Charles W. and Annie L. Bruninghaus Fund  
 The Clark University Faculty Women's Club Scholarships  
 The Theodore T. and Mary E. Ellis Fund  
 The Albert C. Erickson Scholarship  
 The A. D. Ross Fraser Scholarship  
 The Aaron Fuchs Memorial Scholarship Fund  
 The Paul S. Goldman Memorial Scholarship  
 The Bertram L. and Bessie T. Handleman Fund  
 The Frank H. Hankins Scholarship  
 The High School Basketball Tournament Scholarship  
 The Gertrude and Eva Hillman Scholarship  
 The Frances Tufts Hoar Fund  
 The Gordon A. Hubley Fund  
 The M. Hazel Hughes Scholarship  
 The George N. Jeppson Scholarship Fund  
 The David Ashley Leavitt Memorial Scholarship Fund  
 The Levi Knowlton Fund  
 The Elizabeth T. Little Scholarship Fund for Women  
 The Homer Payson Little Scholarship in Geology  
 The Livermore and Ambulance Drivers Scholarship  
 The Robert H. Loomis Scholarship  
 The National Council of Jewish Women Scholarship  
 The Alice Friend Newton Memorial Scholarship  
 The Abraham Persky Scholarship Fund  
 The Charles B. Randolph Fund  
 The Helen Brewster Randolph Memorial Scholarship  
 The Jennie L. Richardson Scholarship  
 The William Richardson Scholarship  
 The Sanford Memorial Scholarship  
 The Samuel Schanberg Memorial Scholarship Fund  
 The Fredric T. Sewall Scholarship Fund  
 The Henry L. Signor Scholarship  
 The Benjamin R. and Grace F. Vanderford Student Aid Fund  
 The Whitman Scholarship  
 The Henry A. Willis Scholarship





# THE GRADUATE SCHOOL





# The Graduate School

## *General Information*

Clark University was initially established in 1887 as the second graduate institution in America. Its faculty and graduates have endowed the University with an impressive record of accomplishments through the years. Under the administration of the Graduate Board, Clark offers programs leading to master's and doctor's degrees to qualified holders of a bachelor's degree or its equivalent of attainment.

Master of Arts degrees are offered in the fields of biology, biomedical engineering (in cooperation with Worcester Polytechnic Institute), chemical physics, chemistry, economics, education, English, geography, government, history, international relations, mathematics, physics, and psychology. The Master of Business Administration degree is offered by the University and is described elsewhere in the catalog.

Doctor of Philosophy degrees are offered in biology, chemistry, chemical-physics, economics, geography, history, international relations, mathematics, physics and psychology. A Doctor of Education degree is offered by the Department of Education.

Post-doctoral training is conducted in geography, psychology and the sciences. Inquiries should be addressed to the chairman of the department concerned.

Departments which do not at present accept candidates for graduate degrees may offer courses which are suitable for inclusion in a program of graduate study.

Scholarships, fellowships and assistantships are listed at the end of this section. Additional information concerning departments and their offerings will be found in the section entitled "Departments and Courses."

## *Inquiries*

Inquiries by students in American institutions concerning specific programs of graduate work should be addressed to the chairman of the department concerned. Inquiries by foreign students should be addressed to the Dean of the Graduate School.

## *Admission To The Graduate School*

Admission to the Graduate School may be granted only by the Credentials Committee of the Graduate Board on the recommendation of a department of the University. Admission to the school does not imply admission to candidacy for a degree.

*Application:* A prospective applicant from an American institution should communicate with the department in which he expects to do his major work. If he is encouraged by the department to make application, he will be provided with an application form which, accompanied by a \$10 application fee, should be returned to the chairman of the department. In addition, the applicant should arrange to have sent to the chairman of the department concerned an official transcript of all undergraduate, and any subsequent academic work, and three letters of recommendation from persons who are competent to judge his qualifications for graduate study.

Departments may request the submission of additional material, and most require a record of attainment in the Graduate Record Examination given by the Educational Testing Service, Princeton, New Jersey. All applicants are urged to take, and to submit the results of the Graduate Record Examination verbal, quantitative and advanced tests.

A foreign student, if encouraged by the Dean to make formal application, should provide a certified English translation of his official record (if not in English), evidence of English proficiency (TOEFL), at least two letters of recommendations and a statement concerning his financial resources, or agency support.

Applications for both admission and for financial aid should be completed not later than *February 20* if the applicant intends to begin his studies in the following September. Applications may be submitted, however, throughout the year.

*Admission:* Admission to the Graduate School is granted for entry only at a specified time and lapses if the student fails to enter at that time. Admission as special or part-time graduate student (special status graduate student) may be granted to qualified applicants who do not wish to work for a degree or who cannot devote full time to study.

Application for regular admission should be made through the department concerned. Application for admission as a special status graduate student should be made through the Registrar's Office.

If a student, when admitted, was a candidate for a degree elsewhere, he must arrange upon receipt of that degree to have a supplementary transcript, including a notation of the degree conferred, sent directly to the Dean of the Graduate School.

*Master of  
Arts*

*Residence:* An Academic year (*twenty-four semester hours*) of study in residence is a minimum requirement for a master's degree. Residence study is broadly defined as graduate work done at Clark University under the immediate personal supervision of at least one member of the University faculty.

*Foreign Language:* A reading knowledge of a foreign language may be required of candidates for the degree of Master of Arts at the discretion of the major department. Language or other special requirements are included in the department announcements in the catalog.

*Candidacy:* Application for admission to candidacy for a master's degree should be filed with the Dean of the Graduate School not later than the first week of the last full semester which the student expects to spend in residence as a candidate for this degree.

Applications will be considered by the Graduate Board when the student has completed one semester of full-time graduate work or its equivalent in residence at the University and obtained the written endorsement of his major department.

Candidacy for the degree of Master of Arts is valid through the fourth commencement after admission to candidacy. For satisfactory reasons, candidacy may be extended once for an additional period of three years by vote of the Graduate Board.

If admission to candidacy is not filed at the time of completion of residence, then, after the fourth commencement, admission to candidacy will be approved once for a three-year additional period by vote of the Graduate Board.

*Course and Examination Requirements:* Each student must meet a minimum course requirement of 30 semester hours, and his program must be approved by the chairman of the department. One of his courses, normally three to six semester hours, may be a research course devoted to the preparation of his thesis. Credit for a maximum of six semester hours of course work at another institution may be approved by the Graduate Board upon the recommendation of the department.

Each candidate must make a satisfactory record in such written examinations as may be required by the major department and in a

final oral examination by a committee of three or more, one of whom must be a member of the Graduate Board.

*Thesis:* The thesis is written on a topic in the field of the student's special interest under the supervision of a member of his major department and in a style, length and format that is appropriate to the problem being researched. The ribbon copy of the thesis, a précis approved by the supervising instructor, and an academic history must be deposited in the Registrar's office not later than three weeks before the date of the commencement at which the degree is to be conferred. At least one additional copy of the thesis and the précis must be delivered to the major department which may require more than one copy. The précis may not exceed 75 words in length. The title page, précis and academic history forms are obtainable from the Graduate School Office. The ribbon copy of the thesis must be typed as prescribed in "The Master's Thesis" issued by the Graduate School Office with its notification of admission to candidacy.

The thesis is deposited by the Registrar in the University Library. The précis is printed in an annual publication, *Dissertations and Theses*.

*Diploma Fee:* This fee for the Master of Arts degree is \$25.00. It covers the cost of the diploma, publication of the précis in the booklet *Dissertations and Theses* and binding of the library copy. It is payable when the thesis is deposited with the Registrar. Students who do not write a thesis, including those receiving the degree on the alternative program, must pay this fee no later than the date on which theses are due in the Registrar's Office.

*Alternative Program:* A candidate for the degree of Master of Arts may be recommended for the degree without a thesis when he has passed the preliminary doctoral examination.

*Non-Resident Students:* Students who have been admitted to candidacy for the degree and are not *registered* students are required to pay the non-resident fee of \$12.50 per semester. This fee doubles on renewal of candidacy.



*Master of  
Arts in  
Education*

The residency, candidacy, course, examination, and diploma fee requirements are the same as those listed for the degree of Master of Arts.

*Thesis:* Students may choose one of three options, subject to the approval of the Department of Education. They may choose to (1) prepare a thesis as required for the M.A. degree; or (2) elect two additional subject-matter courses (six semester hours); or (3) elect a research-seminar, three semester hours, in which papers are prepared and presented to fellow students and staff.

Further information concerning the degree of Master of Arts in Education may be found in the catalog section, "Departments and Courses," listed under the Department of Education.

*Master of  
Business  
Administration*

"This degree is offered through the Division of Business Administration. For further information, see the catalog section "Departments and Courses".

*Doctor of  
Education*

The program leading to the degree of Doctor of Education emphasizes human development and learning as it relates to curriculum, instruction, and evaluation and in the sociology of education. The requirements for this degree closely parallel those for the degree of Doctor of Philosophy (see below). See catalog section on Department of Education for further information.

*Doctor of  
Philosophy*

Only such candidates as give evidence of general proficiency, power of investigation and high attainments in the special fields in which their major subjects lie will be encouraged to proceed to the degree of Doctor of Philosophy.

*Residence:* The minimum requirement is one year of full-time study (not less than 24 semester hours beyond the M.A.), or its equivalent in part-time work, in residence which is broadly defined as graduate work done at Clark University under the immediate personal supervision of at least one member of the University faculty.

If the degree of Master of Arts has been earned at Clark, this requirement is an addition to the residence requirement for that degree.

*Foreign Language:* Each graduate department sets its own language or related requirements as the student's field of research may demand, and must report such requirements in each case to the Dean of the Graduate School. If a language is required either the Educational Testing Service Foreign Language Tests or on-campus testing are employed at the discretion of the department.

*Preliminary Examination:* Upon completion of preparation in his fields of study a prospective candidate takes a preliminary examination set by his major department. This examination may be written or oral, or a combination of both. The chairman of the department may invite non-members of the department from within or without the University to participate in the examination.

*Candidacy:* An application for admission to candidacy should be filed when the applicant has (1) completed two full academic years of graduate work, or its equivalent in part-time work, including one year at Clark University; (2) completed the departmental requirements in a foreign language; (3) passed a preliminary examination in his chosen field of study; (4) obtained the written endorsement of his major department.

Candidacy for the degree of Doctor of Philosophy is valid through the fourth commencement after admission to candidacy. For satisfactory reasons, candidacy may be extended once for an additional period of three years by vote of the Graduate Board. Should a period of four years elapse between completion of prerequisites to filing for candidacy and actual filing for candidacy, then, for satisfactory reasons, candidacy may be accepted once for a three-year period by vote of the Graduate Board.

*Dissertation:* A dissertation which is expected to make an original contribution to some special field of knowledge is required of each candidate. The dissertation, approved by the chief instructor or dissertation committee, is laid before the examining committee at the final oral examination.

An abstract of the dissertation, not exceeding 600 words in length, and a *précis*, not exceeding 75 words, both approved by the instructor

or committee under whom they were written, are also required.

Four weeks before the degree is to be conferred, the ribbon copy of the dissertation, together with two official title pages, an academic history, the ribbon copy of the abstract and of the précis, each in a form prescribed, must be delivered to the Registrar. At the same time, one or more copies of the dissertation and of the abstract may be required by the major department. The title pages, précis and academic history forms are obtainable from the Graduate School Office. The ribbon copy of the dissertation must be typed as prescribed in "The Doctoral Dissertation" and "Suggestions for the Preparation of Doctoral Dissertations for Microfilming" issued by the Graduate School Office with its notification of admission to candidacy.

The Registrar deposits the dissertation and the abstract in the University Library where they remain permanently. A microfilm copy of each dissertation is made by University Microfilms, Inc., of Ann Arbor, Mich., and is available for duplication by them on request. The abstract is printed in *Dissertation Abstracts*; the précis is printed in an annual publication, *Dissertations and Theses*.

*Final Examination:* The final examination is oral and lasts for at least two hours. Additional written examinations may be given if the major department so directs. The candidate is expected to defend his dissertation and, at the discretion of the examining committee, may be questioned on the entire special field of his study. The oral examination is conducted by a committee of at least four members, composed of the chairman of the department, at least one other member of the Graduate Board, and such members of the department and non-members from within or without the University as the chairman may appoint. The chairman notifies the Dean of the Graduate School, at least one week in advance, of the time and place of the examination and the composition of the committee. The Dean is authorized to invite any person from within or without the University to be present and to assist in the examination.

*Diploma Fee:* This fee for the Doctor of Philosophy degree is \$85.00. It covers the cost of the diploma, hood, publication of the précis in the publication *Dissertations and Theses*, publication of the abstract in

*Dissertation Abstracts* and binding of the library copy of the dissertation. It is payable when the dissertation is deposited with the Registrar.

*Non-Resident Students:* Students who have been admitted to candidacy for the degree and are not *registered* students are required to pay the non-resident fee of \$25.00 per semester. This fee doubles on renewal of candidacy.

Post-doctoral students are classified in three categories: *Honorary Fellows* who are visitors for varying lengths of time, always more than a few days, who wish to observe activities of a department, to study, or to carry on research, but without formal teaching duties or support by the University; *Research Associates* who work full-time with designated members of the University staff on research projects, normally supported by grants, without formal teaching duties but with some responsibility for directing laboratory assistants; and *Trainees* who enroll in a formally offered post-doctoral training program.

The Honorary Fellow and Research Associates enjoy faculty status, although the extent to which faculty privileges may be granted may be restricted by availability of space and other resources.

Graduate fellowships and scholarships are provided for well-qualified graduate students by the University from endowed funds and from other sources. Financial aid to graduate students is available also in the form of grants from a number of special funds, and in some departments, from sponsored research grants. A limited amount of part-time employment is available in the various offices and departments of the University. Students who receive awards must obtain permission from the department before accepting employment.

### *Post-Doctoral Study*

### *Graduate Scholarships, Fellowships and Assistantships*

**Application:** Application for a scholarship or fellowship to begin in September should be made before *February 20* to the chairman of the department in which the applicant expects to do his major work. Late applications are acted upon periodically. All applications, after endorsement by the department, go to the Graduate Board for final action.

*Research Fellowships:* These fellowships may be awarded to graduate



students who have fulfilled their residence requirements and who are pursuing a full-time doctoral program.

*Teaching Assistant Scholarships or Fellowships:* These may be awarded to teaching assistants who are engaged in full-time activity on campus, of which approximately half-time is devoted to teaching duties and approximately half-time is devoted to graduate study.

*Teaching Assistantships:* In several departments, teaching assistantships, involving less than half-time, are available with stipends which vary according to the amount of service agreed upon.

Note that the departments of Biology, Chemistry, Economics, Geography, History, Mathematics, Physics, and Psychology require teaching experience for graduate degrees. See the departmental announcements in the catalog section on "Departments and Courses".

*Assistantships:* In several departments, assistantships are available. They involve a variety of services including research with stipends to correspond, and usually provide the student with experience which will be useful in his later professional work.

*Graduate Fellowship and Scholarship Funds:* Stipends for graduate fellowships and scholarships are provided by:

*The Alumni Association Fund,* provided by alumni who hold the degree of Doctor of Philosophy to benefit students studying for that degree.

*The George S. Barton Fund,* a bequest from the Honorable George S. Barton of Worcester, to be used for the benefit of native-born citizens of Worcester.

*The Elnora W. Curtis Fund,* a bequest from Dr. Elnora W. Curtis, A.M. 1908, Ph.D., 1910, for the benefit of graduate students.

*The Eliza D. Dodge Fund,* to be granted to graduate students of limited means who are engaged in research work.

*The Joseph F. Donnelly Memorial Fund,* a bequest from Lucretia F. Donnelly to help men who are enrolled in a course leading to the degree of Doctor of Philosophy.

*The John White Field Fund,* established by Mrs. Eliza W. Field to provide for the minor needs of a scholar or fellow.

*The Austin S. Garver Fund*, a bequest from Austin S. Garver, member of the Board of Trustees from 1908 to 1918.

*Graduate School Scholarship Fund*, a bequest from Alexander H. Bullock, a member of the Board of Trustees from 1926 to 1946 and president of the board from 1938 to 1946.

*The George Frisbie Hoar Fund*, the gift of Andrew Carnegie in honor of the second president of the University's Board of Trustees.

*The Myers Fund*, a gift of George E. Myers, Ph.D., '06, to assist graduate students to do research in education and psychology.

*The Charles H. Thurber Fund*, provided by Charles H. Thurber, member of the Board of Trustees from 1913 to 1938 and president of the board from 1919 to 1937.

Loans, bearing interest at three per cent per year after completion of residency, are available for graduate students from these funds:

*Graduate  
Loans*

*The Mary S. Rogers Scholarship and Loan Fund*, established in 1926 for the benefit of students in the graduate school.

*Loan Funds*

*The Mary M. Thurber Fund*, established by the late Dr. Charles H. Thurber, former president of the University Board of Trustees, as a memorial to his mother.

For loans from these and other sources that may become available, application should be made at the Graduate School Office.

*The Wallace W. Atwood Research Fund*. The income of this fund may be used at the discretion of the staff in the Graduate School of Geography for the promotion of field studies in geography by any member of the staff, or any one of the alumni holding a graduate degree from the Graduate School of Geography, or for the publication of results of such research work.

*Departmental  
Funds*

*The Chester Bland Fund*. The income of this fund is preferably used to provide aid to a promising student, either in residence or engaged in research elsewhere under the direction of the Department of History. It may also be used to defray the expense of visiting lecturers or of departmental research.

*The Wallace W. Greenwood Fund*. The income only is to be divided between the Departments of Physics and Chemistry and to be used for

any purpose within the scope of these two departments.

*The Morton L. "Sonny" Lavine Foundation* is a memorial to Lieutenant Lavine of the United States Army, World War II. The income is to be used for the promotion of research in the Department of History.

*The Libbey Fund*, bequeathed to the University by Mary E. Libbey, is to establish a fellowship in physical geography and to aid the Department in that field.

#### *Other Funds*

In addition to the Clark departmental funds listed above, several departments participate in national fellowship or traineeship programs; including:

*National Defense Education Act, Title IV* fellowships in economics, geography, history and psychology.

*National Science Foundation* traineeships in biology, chemistry, economics, geography, mathematics, physics, and psychology.

*Public Health Service* fellowships and traineeships in biology, chemistry and psychology.

United States Office of Education, *Education Professions Development Act* fellowships in Geography, Economics, and History. *Committee on Geography and Afro-America* fellowships in Geography.

For further information consult the chairman of departments or the Dean of the Graduate School.

#### *Housing and Board*

Off-campus rooms and apartments for both men and women are available in the immediate area of the University. For information concerning accommodations, write directly to the Office of Buildings and Grounds, which keeps a *bulletin board* of available off-campus rooms and apartments, or to the department concerned. Students should plan to arrive a few days before registration in order to arrange for housing because of the limited number of suitable off-campus apartments in the immediate area.

Graduate students are invited to take their board in the University dining halls under one of the food plans available. They will also find the Snack Bar in Jefferson Hall available for single meals.

#### *Infirmery and Insurance*

A low-cost insurance plan covering ordinary medical expenses and limited maternity benefit for married students is available through the

University. Unless a student is protected by similar insurance, he must enroll in this plan since all graduate students must be covered by Health and Accident Insurance. Students are not automatically covered by this insurance but must apply for it through the Graduate School Office where applications are available.

Graduate students are entitled to use of the Infirmary for minor first-aid needs.

## Graduate Tuition and Other Charges

Tuition and insurance charges are payable when the semester bill is received. Identification cards are provided each year of residence. A late registration fee of \$25.00 is charged if registration is not completed by the end of the second week of the semester. Candidates who are not in residence must pay the non-resident fee until the requirements for the degree are fulfilled; non-payment will automatically terminate candidacy.

*Tuition:* (Full Program: 12 to 18 semester hours) \$1,300.00 per semester.

*Schedule of  
Tuition and  
Other  
Charges*

If less than a full program, the student will be charged according to the fraction of a program indicated by the Chairman of the department on the registration card.

Tuition for Special Graduate Students \$110.00 per semester hour

|                            |          |
|----------------------------|----------|
| Insurance: Single Students | \$ 33.00 |
| Student and Spouse         | \$135.00 |
| Family Plan                | \$165.00 |

*Diploma Fee:* (payable at the time the thesis or dissertation is deposited with the Registrar):

Students who do not write a thesis or dissertation, including those receiving the degree on the alternative program, must pay this fee no later than the date on which theses are due in the registrar's office.

|                          |         |
|--------------------------|---------|
| Master's Degrees         | \$25.00 |
| Doctor of Philosophy and |         |
| Doctor of Education      | \$85.00 |





*Non-Resident Candidate Fees:* (payable on November 1 and March 1). If the thesis or dissertation is deposited with the Registrar before either date, no fee is charged for the semester.

The fees double upon renewal of candidacy.

|                     |                      |
|---------------------|----------------------|
| Master's Candidates | \$12.50 per semester |
| Doctoral Candidates | \$25.00 per semester |

(For the Master of Business Administration tuition and fees, see the "Evening College Catalog.")

### *Refund*

A student who withdraws during the first two weeks of any semester is allowed a refund of 60 per cent on tuition; during the third week, 40 per cent; during the fourth week, 20 per cent; after the fourth week there is no refund. There is no refund on other charges, except board, when a student withdraws from the University.



## The Summer School

Intensive instruction in numerous fields of study is offered through two summer programs: a three-week intersession and a six-week summer session program. A variety of courses is offered for undergraduates, graduate students and teachers. A student may register for three courses each summer by attending the Intersession and the Summer Session. Evening courses are also available during the summer to all students to continue their education while engaged in day-time employment.

*Summer Study*

All courses offered in the Summer Session or Intersession programs are accepted at Clark for credit toward bachelor's degrees unless they are specifically limited in the description of the course. Many courses count toward the degrees of Master of Arts, Master of Arts in Education and Doctor of Philosophy. However, approval for such courses should be obtained in advance from the student's major department.

*Degrees and  
Credit*

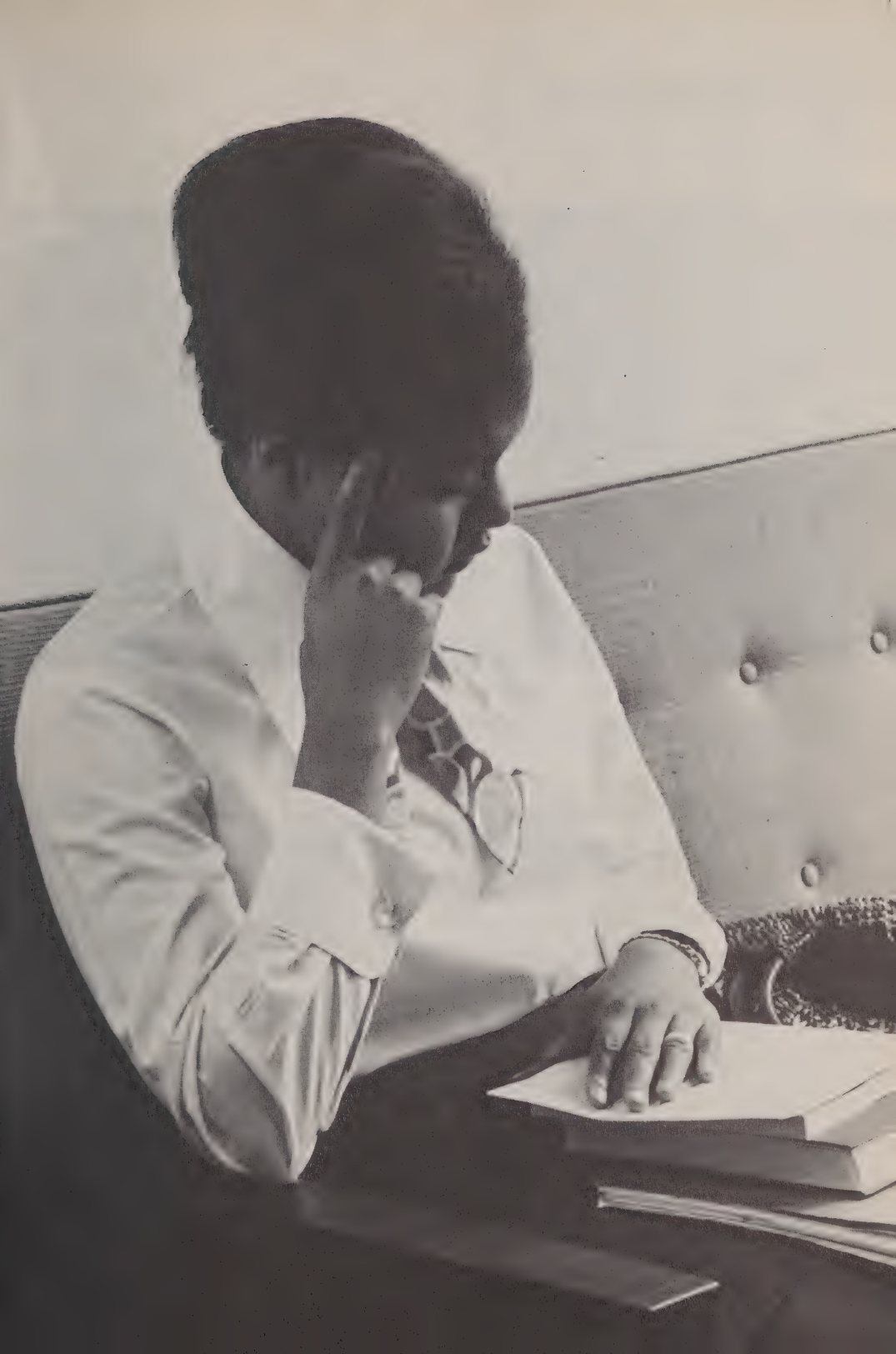
Graduate students formally registered in the Summer School may, with the approval of their major department, enroll in thesis courses under the direction of regular members of the staff.

A student may carry in a normal program one course in the Intersession and two courses in the Summer Session. Permission to carry an additional course may be granted but only in exceptional cases and with approval in writing prior to registration.

Detailed information concerning the Summer Session and Intersession are contained in a Summer School catalog which may be requested from the director of the Summer School.

*Summer  
School  
Catalog*









## The Evening College

### *General Information*

The Evening College, established in 1953 as an institution devoted to adult learning, has three primary functions. With the conviction that education in our modern society must be a life-long process, it provides university education for adults of all ages who seek further knowledge and personal development through selected studies in the broad areas of the liberal arts. Further, in recognition of the rapidly developing and changing needs of business and the professions, it provides courses designed to help working men and women improve their occupational skills and to prepare for positions of increased responsibility.

Secondly, the Evening College provides an opportunity for adults to earn the bachelor's degree, exclusively by evening study, through programs planned to meet the unique educational needs of the mature person. Formal programs are available leading to the degree of Bachelor of Science in either general studies or business administration and to the degree of Bachelor of Fine Arts. The Evening College also offers the Diploma in General Studies after completion of a short formal program in liberal education designed specifically for adults.

Finally, as a community service, the Evening College organizes frequent non-credit short courses, institutes and seminars, which are tailored to the specific needs of various civic, professional and business groups.

Students may be enrolled for either individual courses or formal programs of study.

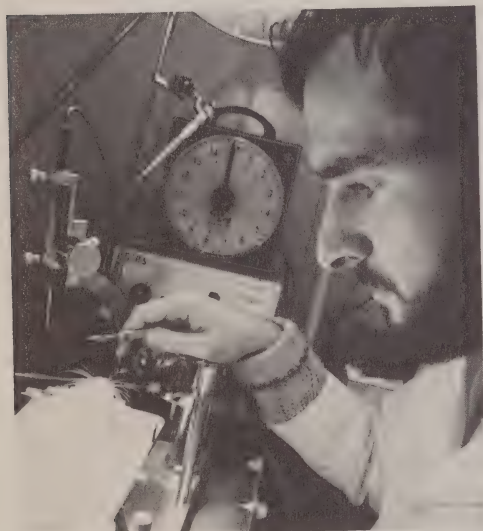
*Individual Courses:* Admission to individual courses in the Evening College is open to all interested adults seeking to further their education. High school graduation is not required but desirable. Continued attendance is contingent upon evidence of ability to profit from the instruction offered. Advanced courses for which prerequisite courses or experience are indicated are open only to persons who meet the stated requirements.

*Admission To Formal Programs:* Adults applying for a formal program of study in the Evening College will be required to submit records of their previous schooling prior to admission. Except under unusual circumstances applicants must possess a diploma from an accredited high school. Applicants for the Bachelor of Science degree or the Diploma in General Studies who have not attended college previously may arrange to have their high school records forwarded to the Evening College on forms supplied to them on request to the college. Adults who have attended other colleges should request that their transcripts be forwarded directly to the Evening College.

*Admission*

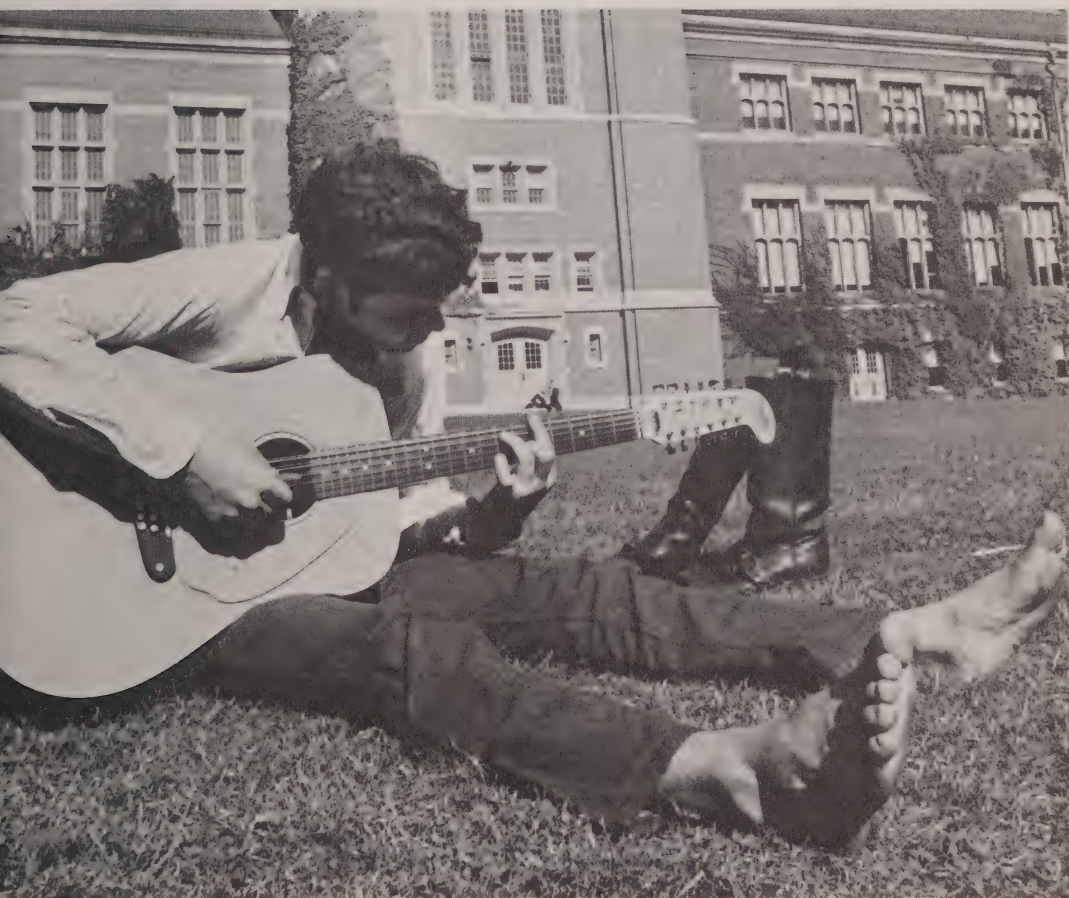
Detailed information about the Evening College is contained in a special catalog which may be requested from the director of the Evening College.

*Evening  
College  
Catalog*





## DEPARTMENTS AND COURSES





# Departments and Courses

The course offerings of each department are listed in their numerical sequence. The announced courses are subject to modification and change.

*Department  
Courses*

Each course is indicated by number and title. A course number, unmodified by “a” or “b” indicates a year-course, one which continues through two semesters of an academic year. A course number followed by an “a” refers to a half-course usually offered in the first semester. A number followed by a “b” refers to a half-course usually offered in the second semester.

*Course  
Numbering  
System*

Two-semester courses are divisible unless an explicit statement of indivisibility appears in the course statement. Courses which are indivisible normally require the successful completion of the first semester as a prerequisite to entering the second semester, and students who register for an indivisible course must complete the second semester of the course before receiving credit for the first.

# Biology

## DEPARTMENT FACULTY

Rudolph F. Nunnemacher, Ph.D., *Professor of Zoology, Department Chairman*  
 Vernon Ahmadjian, Ph.D., *Professor of Botany*  
 Joseph C. Curtis, Ph.D., *Professor of Zoology*  
 John T. Reynolds, Ph.D., *Professor of Microbiology*  
 John J. Brink, Ph.D., *Associate Professor of Biochemistry*  
 Behrus Jahan-Parvar, M.D., *Associate Professor of Physiology*  
 Nicholas S. Thompson, Ph.D., *Assistant Professor of Biology and Psychology*  
 Bruce C. Coull, Ph.D., *Assistant Professor of Zoology*  
 Richard A. Howard, Ph.D., *Assistant Professor of Biology and Geography*  
 H. William Johanson, Ph.D., *Assistant Professor of Botany*  
 Dr. Timothy A. Lyerla, *Assistant Professor of Developmental Genetics*  
 Robert G. Sherman, Ph.D., *Assistant Professor of Physiology*  
 George Camougis, Ph.D., *Professor (Affiliate) of Physiology*  
 Warren Litsky, Ph.D., *Professor (Affiliate) of Microbiology*  
 Harris Rosenkrantz, Ph.D., *Professor (Affiliate) of Biochemistry*  
 Ian D.K. Halkerston, Ph.D., *Associate Professor (Affiliate) of Endocrinology*  
 Harry L. Jacobs, Ph.D., *Associate Professor (Affiliate) of Physiology*  
 Fernand G. Peron, Ph.D., *Associate Professor (Affiliate) of Biochemistry; Director of Steroid Training Program*  
 Robert N. Boyes, Ph.D., *Assistant Professor (Affiliate) of Biology*

## UNDERGRADUATE PROGRAM

Two majors are available. Type A is most suitable for those intending to apply for graduate studies in biology, medicine, dentistry, etc. This program is more prescribed and courses must be taken for letter grades. The type B major allows the student to request the department to approve a selection of courses in related fields of his own choosing. It is particularly suitable for those with interests spanning several departments. Courses in related fields may be taken on a pass-no record option.

A departmental major (Type A and B) must take Biology 108 and one of the following courses: Biology 109, Biology 110 or Biology 111; and in addition, five or six advanced semester courses for a total of 26 semester hours in Biology. In related fields, the type A major must take Chemistry 11, Physics 10a, 11b, and at least one additional year course in chemistry, physics, or geology for a total of 24 semester hours. Additionally, the major must take a full year of Calculus (Mathematics 12). None of the aforementioned courses may be taken on a "pass-no record" option.

The type B major submits a program of courses in related fields of his own choosing, totaling 24 credits, approval by the department. Such a program might combine interests in biology and psychology, sociology or anthropology, or other fields and recognizes the desirability of inter-departmental studies.

At least 36 semester hours of a major's program must be taken from courses outside the field of biology, chemistry, geology, mathematics, physics, and psychology 160, 222, 328.

The Department strongly advises all majors to select and consult with an advisor for obtaining the maximum benefits which the department has to offer.

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### HONORS PROGRAM

An Honors Program is available to especially well qualified majors and encourages the student to engage in an independent research project during the senior year. Frequently the Honors Project is the continuation of research begun during the summer under the National Science Foundation Undergraduate Research Participation Program.

### GRADUATE PROGRAM

The department offers courses leading to Master of Arts and Doctor of Philosophy degrees in specialized phases of bacteriology, biochemistry, botany, cytology, physiology and zoology. Admission to the graduate program assumes adequate preparation in the basic sciences, an overall undergraduate record of B or better, and satisfactory standing in the Graduate Record Examination. Tuition scholarships and Teaching Assistantships are available. Detailed information can be obtained from the department chairman.

*Master of Arts:* The program usually requires three or four semesters of academic work and includes teaching experience and research culminating in an acceptable thesis.

*Doctor of Philosophy:* The requirements are identical with those of the University and can be found in the catalog section on The Graduate School and includes teaching experience. The student's program is planned according to his needs with his program director.

### TRAINING PROGRAM FOR STERIOD BIOCHEMISTRY

A Training Program for Steriod Biochemistry has been established at the University through the cooperation of the Department of Biology and the Worcester Foundation for Experimental Biology with the support of the National Cancer Institute and the U.S. Public Health Service. Post-doctoral fellowships are availalbe for persons possessing the Ph.D., M.D., or equivalent training. Further information may be obtained from the *Program Director, Dr. Fernand G. Peron*.

### NEUROLOGICAL SCIENCES TRAINING PROGRAM

This program is supported by the U.S. Public Health Service and carries fellowships at both the pre- and post-doctoral level. Training is offered in Neurophysiology, Neurochemistry, Neuroanatomy and related areas. For further information contact the *Program Director, Dr. R.F. Nunnemacher*.

### COURSES

#### 108a. INTRODUCTION TO THE BIOLOGICAL SCIENCES.

The course provides a common basis to non-majors and prospective majors without advanced preparation in biology for all further course work in the department. It is concerned with the major generalizations of biology, with emphasis on cellular and molecular mechanisms. The laboratory sequence introduces some of the methodology that permits the student to participate in a scientific endeavor and emphasizes the analysis and interpretation of data. Three lectures and one laboratory period per week.

*Four semester hours,*

Mr. Reynolds.

#### 109b. MICROBIOLOGY.

A survey of microorganisms, their activities and the methods by which they are studied. Prerequisite: Biology 108 or its equivalent. Three lectures and one laboratory period per week.

*Four semester hours,*

Mr. Reynolds.

**110b. BOTANY.**

A survey of the taxonomy, structure, and physiology of plants. Prerequisite: Biology 108 or its equivalent. Three lectures and one laboratory period per week.

*Four semester hours.*

Mr. Johansen.

**111b. ZOOLOGY.**

A survey treating the evolution of the major animal phyla with emphasis on structural and functional adaptations, and principles of ecology. Prerequisite: Biology 108 or its equivalent. Three lectures and one laboratory period per week.

*Four semester hours.*

Mr. Nunnemacher.

**112a. COMPARATIVE ANATOMY.**

A comparative study of the morphology of the vertebrates with emphasis on the evolution of animals from fish to man. Prerequisite: Biology 111. Two lectures and two laboratory periods per week.

*Four semester hours.*

Mr. Nunnemacher.

**114a. PHYCOLOGY**

The structure, function and interrelationships of fresh-water and marine algae will be studied with a view to understanding their role in the biosphere. Prerequisite: A course in botany or consent of the instructor. Three lectures and one laboratory period per week.

*Four semester hours.*

Mr. Johansen.

**115b. SYSTEMATIC BOTANY.**

An introduction to the classification, evolution, ecology, and economic importance of flowering plants, with emphasis on the New England flora. Ferns and fern-allies will also be included. Short field trips will be made to nearby areas for examination of the spring flora. A collection of plants will be encouraged but not required. One three-hour lecture-laboratory period per week.

*Three semester hours.*

Mr. Ahmadjian.

**117a. PRINCIPLES OF ECOLOGY.**

A course in basic ecological theory governing organism-environment interrelationships. Population dynamics, energy flow, zoogeography, community ecology, as well as ecological methods and environmental problems will be included. Prerequisite: Biology 108 or its equivalent. Two lectures and a laboratory period per week.

*Three semester hours.*

Mr. Coull

**118a. GENETICS.**

Principles and problems of genetics.

*Three semester hours.*

Mr. Lyerla.

**120b. HISTOLOGY.**

The microscopic anatomy of tissues and organs of mammals. Prerequisite: Biology 112. Two lectures and two laboratory periods per week.

*Four semester hours.*

Mr. Nunnemacher.



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### 137b. CELLULAR BIOLOGY.

The cell as a structural and functional unit. Introduction to the physiochemical properties and metabolic roles of molecules and macromolecules of cellular origin. Discussion of the roles of the nucleus and cytoplasm in the regulation of cellular processes. Three lectures per week. Prerequisite: Biology 108 or equivalent.

*Three semester hours.*

Mr. Curtis.

### 210b. PLANT STRUCTURE.

Cells, tissues and organs of vascular plants will be studied with a view to understanding how these parts integrate to form the whole plant. Prerequisite: A course in botany or consent of instructor. Three lectures and one laboratory period per week.

*Four semester hours.*

Mr. Johansen.

### 215b. INVERTEBRATE ZOOLOGY.

A detailed survey on the diversity of invertebrates. Anatomical and histological examination of selected types. Concepts of evolution and speciation. Prerequisite: two semesters of biology or consent of instructor. Three lectures and one laboratory period per week.

*Four semester hours.*

Mr. Coull.

### 221b. EMBRYOLOGY.

Consideration of the fundamentals of vertebrate embryology. Two lectures and two laboratory periods per week. Prerequisite: Biology 112.

*Four semester hours.*

Mr. Nunnemacher.

### 224b. NEUROANATOMY.

Not offered, 1971-72.

The structural and functional organization of the central nervous system of man. Prerequisite: Biology 112 or consent of instructor. Three lectures per week.

*Three semester hours.*

Mr. Jahan-Parvar.

### 225a. ELECTRON MICROSCOPY.

Introduction to the principles of electron optics, use of the electron microscope, preparation of specimens and the techniques of electron microscopy applicable to biological investigations. Two lectures and two laboratory periods per week. Prerequisite: permission of the instructor.

*Four semester hours.*

Mr. Curtis.

### 231b. BACTERIAL PHYSIOLOGY.

Not offered, 1971-72.

Lecture topics and laboratory exercises selected to demonstrate chemical and physical principles underlying bacterial activities. Two lectures and two laboratory periods per week. Prerequisites: Biology 232 and consent of the instructor. Biology 240 is recommended.

*Four semester hours.*

Mr. Reynolds.

### 232a. BACTERIOLOGY.

The biology of the bacteria and certain related forms with emphasis on their ecological role. Prerequisites: Biology 109, Chemistry 13, and consent of instructor. Two lectures and two laboratory discussion periods per week.

*Four semester hours.*

Mr. Reynolds.

### 240b. GENERAL PHYSIOLOGY.

Introduction to the physical and chemical phenomena underlying the functions common to living organisms. Two lectures and two laboratory periods per week. Prerequisites: Biology 137, Chemistry 11 and Physics 10, 11.

*Four semester hours.*

Mr. Sherman.

**241b. ENDOCRINOLOGY.**

Not offered, 1971-72.

General principles of vertebrate endocrinology.

*Three semester hours.*

Mr. Halkerston.

**242a. COMPARATIVE ANIMAL PHYSIOLOGY.**

Not offered, 1971-72.

**247b. SEMINAR IN NEUROPHYSIOLOGY.**

A seminar on the principles of transmission, integration and storage of information in neuronal pathways and other considerations of the nervous system. Prerequisite: A course in neurophysiology or its equivalent or consent of the instructor.

*Three semester hours.*

Mr. Jahan-Parvar.

**248a. SENSORY PHYSIOLOGY.**

Not offered, 1971-72.

A seminar on the principles of organization and function of invertebrate and vertebrate sensory receptors. Prerequisite: Biology 240.

*Three semester hours.***249b. NEUROPHYSIOLOGY.**

Physiology of central and peripheral nervous systems, receptors and muscles, considered in both vertebrates and invertebrates. Three lectures and one laboratory period per week. Prerequisite: Biology 240 or consent of the instructor.

*Four semester hours.*

Mr. Sherman.

**250. PRINCIPLES OF APPLIED IMMUNOLOGY.**

Not offered, 1971-72.

An introduction to the basic principles, problems and theories concerning the immunological behavior of man and the animal kingdom, familiarizing the student with the experimental evidence upon which are based the present concepts of immune mechanisms. The course is oriented to demonstrate the basic methods of experimental immunology and the application of such methods to biological problems.

*Three semester hours.***257b. BIOPHYSICS.**

Not offered, 1970-71.

Consideration of the physical properties of biological system. Influence of various physical agents upon biological structure and function. Physical methods of analysis of biological macromolecules. Three lectures per week. Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Curtis

**260a, b. SPECIAL PROBLEMS.**

Advanced semi-independent study of an approved topic under the direction of a departmental member. Consent of instructor required. Required for honors in biology.

*Three or four semester hours.*

Staff.

**268b. PRINCIPLES OF PHARMACOLOGY.**

This course is intended to acquaint the student or research worker with established principles and the more important phenomena involved in the study of pharmacology. Particular emphasis is placed on the quantitative aspects of the interaction of chemical compounds or drugs with biological systems. The principal pharmacological actions of several important drugs are illustrated.

*Three semester hours.*

Mr. Camougis.

**270. BIOCHEMISTRY.**

The principles of mechanisms of biochemical reactions in an understanding of the metabolism of foodstuffs and the role of enzymes, nucleic acids and hormones. An acquaintance with the instrumentation in biochemical research will be presented. Prerequisite: Chemistry 13. Three lectures, one laboratory per week.

*Four semester hours each semester.*

Mr. Brink.

## 78 BIOLOGY

### 271b. BIOCHEMISTRY OF NUCLEIC ACIDS.

The chemical and physical properties of RNA and DNA derived from various sources will be considered with respect to their isolation, separation and characteristics. The functional role and biological significance of the nucleic acids in subcellular organelles will be examined. Prerequisite: Biology 270 or consent of instructor.

*Three semester hours.*

Mr. Brink.

### 272a. METABOLIC PATHWAYS IN BIOCHEMISTRY.

Not offered, 1971-72.

The course is concerned with a discussion of the biosynthetic pathways of essential biological materials, i.e. amino acids, lipids, vitamins and minerals in those living systems, plant and animal, capable of producing them. In addition their biochemical importance in mammals will be stressed. Prerequisite: Biology 270.

*Three semester hours.*

Mr. Rosenkrantz.

### 273b. SEMINAR IN NEUROCHEMISTRY.

The metabolic aspects of brain amines and biopolymers will be considered in relation to neural function. Effects of drugs on memory processes will be discussed in terms of biochemical mechanisms. Prerequisite: Biochemistry 270 or consent of instructor.

*Three semester hours.*

Mr. Brink.

### 275a. CLINICAL BIOCHEMISTRY.

Clinical or diagnostic biochemistry features a study of biochemical parameters in health and disease determined on blood, urine and other biological fluids. This course will encompass clinically significant facts pertaining to absorption, transport, distribution, function, metabolism and excretion of certain proteins, lipids, carbohydrates, hormones, enzymes, vitamins and minerals. Quantitative detection procedures will be discussed and demonstrated. Prerequisite: Chemistry 11, Biology 108, 111, or 270 or its equivalence in laboratory training or consent of instructor. Three lectures and demonstration per week.

*Three semester hours.*

Mr. Rosenkrantz.

### 300. READINGS AND RESEARCH IN BIOLOGY.

*Three to four semester hours.*

Staff.

### 310. SCIENTIFIC WRITING FOR GRADUATE STUDENTS.

An introduction to the techniques of writing scientific papers. The principal assignment will be the writing of a journal article and a detailed analysis of the steps involved. Related areas which will be covered include searching the scientific literature, handling of quantitative data relevant to biological systems, and oral presentation of a scientific paper. Prerequisite: permission of the instructor.

*Three semester hours.*

Mr. Ahmadjian.

### 325a. SEMINAR IN ULTRASTRUCTURE.

Discussion of the structure of macromolecules and subcellular organelles in relation to their biological functions. Evidence obtained by a variety of physical and chemical methods will be considered, particular emphasis being placed on electron microscopic studies. Consent of instructor required.

*Three semester hours.*

Mr. Curtis.

### 332b. SEMINAR IN BACTERIOLOGY.

Not offered, 1971-72

Selected topics in bacterial ecology and physiology. Consent of instructor required.

*Three semester hours.*

Mr. Reynolds.

341a. SEMINAR IN ENDOCRINOLOGY.

*Three semester hours.*

Not offered, 1971-72.

Mr. Curtis.

350. GRADUATE SEMINAR.

Staff

355a. PROBLEMS IN BEHAVIORAL PHYSIOLOGY.

Not offered, 1971-72.

Topics will be chosen in which interdisciplinary substantive material and methods from neuro-physiology, endocrinology, nutrition, sensory and regulatory physiology, and psychology (learning, modification, and sensation and perception) will be applied to simple behavioral systems in the whole organism. Prerequisite: Biology 240.

*Three semester hours.*

Mr. Jacobs.

360. MASTER'S THESIS.

Staff.

390. DOCTORAL DISSERTATION.

Staff.

## Biomedical Engineering

The Program in Biomedical Engineering is a graduate program under the joint sponsorship of Clark University and Worcester Polytechnic Institute. The aim of the program is to combine the resources of the two institutions to provide special education in this rapidly developing interdisciplinary area. Students entering the program must have a bachelor's degree in mathematics or one of the basic or engineering sciences. The master's program will include a minimum of five full courses taken at both institutions. All students will be expected to achieve some basic knowledge in biology, chemistry, engineering, mathematics and physics. Since a thesis on research is also required, the program will normally require at least two years of study. In general, the requirements for the degree will be consistent with the requirements for a master's or doctoral degree at both institutions. The detailed requirements for each student will be worked out by a Committee on Biomedical Engineering made up of faculty members from both institutions. Students enrolled at Clark will receive an M.A. or Ph.D. in Biology, the actual degree noting the cooperation of W.P.I. Conversely, students enrolled in the first instance at W.P.I. will receive the M.S. or Ph.D. in Biomedical Engineering, with the cooperation of Clark indicated on the degree.

For further information, write to: The Director, Biomedical Engineering Program, Clark University, Worcester, Massachusetts 01610.

## Business Administration

### DEPARTMENT FACULTY

Harold T. Moody, Ph.D., *Associate Professor of Business Administration and Economics, Department Chairman.*

George A. Balko, Jr., M.B.A., *Assistant Professor of Business Administration.*

Robert W. Scull, M.B.A., *Assistant Professor of Business Administration.*

Hennie I. Deboeck, M.B.A., *Lecturer in Business Administration, (part-time).*

Daniel R. Kilty, Ph.D., *Lecturer in Business Administration, (part-time).*



Lawrence H. Nath, Ph.D., *Lecturer in Business Administration, (part-time)*.

Albert J. Sargent, Ph.D., *Assistant Professor of Business Administration, (part-time)*.

Henry T. O'Hara, M.B.A., *Instructor in Business Administration*.

H. John Choo, Ph.D., *Lecturer in Business Administration (part-time)*.

Leon S. Graubard, A.M., *Lecturer in Business Administration (part-time)*.

#### GRADUATE PROGRAM

The Division offers a graduate program leading to the degree of Master in Business Administration. The academic objective of the Division is to provide students with the opportunity to acquire an understanding of organizational behavior, decision-making techniques, and the relationships of the organization to its environment.

Admission to the Division requires the Admission Test for Graduate Study in Business (ATGSB) given by the Educational Testing Service (ETS), in addition to the requirements of the Graduate School listed elsewhere in the catalog. Criteria normally used in evaluating an applicant's potential include his achievement as an undergraduate, performance on the Admission Test for Graduate Study in Business, and his personal growth and development in his career. Scholarships are available for a limited number of well-prepared full-time students which exempt their holders from tuition fees.

All courses in the Division are scheduled in the late afternoon and evening, thus serving the needs of part-time as well as full-time students. This provides an excellent opportunity for students without experience to develop close associations with practicing managers.

The program requires 19 semester hours of prerequisite courses and a 30 semester-hour graduate program. Some or all of the prerequisite courses may be waived if the equivalent upper division undergraduate courses recently have been taken by the student. Thus, students with no prerequisite academic preparation in administration and management can expect to complete the MBA requirements in one and a half academic years in residence, and students who meet the prerequisite course requirements can expect to complete the MBA in one year. Except with special permission only students who have been formally accepted for matriculation and who have completed prerequisites may register for graduate courses.

#### COURSES

##### 291. SURVEY OF BUSINESS.

A reading course familiarizing students with business terminology and basic business practices. There are five sections: a) Finance, b) Organizational Theory and Behavior, c) Marketing, d) Labor Law and Collective Bargaining, and 3) Business Law and Anti-trust legislation.

*One semester hour.*

Staff.

##### 293. THEORY OF THE FIRM.

Intermediate microeconomic theory, with emphasis on demand and the theory of production.

*Three semester hours.*

##### 294. MACROECONOMICS.

The measurement, analysis, and control of aggregate economic activity is studied. Theories of consumption, investment, prices, and interest rates are discussed relative to monetary and fiscal policy at various stages of the business cycle.

*Three semester hours.*

##### 295. PROBABILITY AND STATISTICS.

An introduction to statistical analysis including descriptive statistics. Elements of probability and sampling theory are introduced for statistical estimation and testing of hypotheses for statistical significance. Statistical decision rules are constructed and evaluated.

*Three semester hours.*

**296. STATISTICAL ANALYSIS OF RELATED DATA.**

Linear and curvilinear, bivariate and multivariate regression and correlation analysis. Time series decomposition and construction and use of index numbers. Prerequisite: 295.

*Three semester hours.*

**297. BUSINESS ACCOUNTS AND FINANCE.**

Generally accepted accounting procedures are examined as a tool for financial reporting. The concepts and instruments of corporate finance are introduced when appropriate.

*Three semester hours.*

**299. ORGANIZATION THEORY AND MARKETING MANAGEMENT.**

This course consists of two sections: the first section: considers the nature and development of organization structure in response to changing technology as well as to changes in concepts for controlling the activities of those who must interact effectively to achieve organization goals. The second section studies the consumer and consumer behavior, channels of distribution, promotion, pricing and the marketing mix of a firm.

*Three semester hours.*

**320. FOUNDATIONS OF BUSINESS.**

A study and analysis of the factors, historical and current, which have resulted in the responses thoughtful businessmen are required to make to the demands of society today.

*Three semester hours.*

**330. MANAGERIAL ECONOMICS.**

A critical review of economic concepts, measurement, methodology, and theory as relevant to business decision making and policy.

*Three semester hours*

**335. ACCOUNTING FOR MANAGERIAL DECISIONS.**

The assumptions and procedures of traditional accounting, such as cost control, budgeting, capital budgeting and statement analysis are reviewed as to their originally designed purpose and their applicability for informed decision making.

*Three semester hours.*

**340. MARKETING RESEARCH.**

Marketing objectives and complex marketing decisions are treated in the context of risk-bearing and incomplete information. The Bayesian approach to decision making is stressed.

*Three semester hours.*

**350. STATISTICAL DECISION THEORY I.**

An introduction to decision making with uncertainty. Classical probability theory is contrasted with Bayesian analysis.

*Three semester hours.*

**351. MATHEMATICAL PROGRAMMING.**

An introduction to mathematical programming models, with emphasis given to linear programming. Attention also is given to dynamic, integer, quadratic, and stochastic models.

*Three semester hours.*

## 82 BUSINESS ADMINISTRATION

### 360. SYSTEMS ANALYSIS.

Models of the behavior of firms and industries are created for experimentation and policy evaluation. The essentials of computer programming are introduced to facilitate the system analysis.

*Three semester hours.*

### 370. POLICY FORMULATION.

A logical framework for the analysis of policy problems will be emphasized. Students are expected to work together in small groups to formulate and logically support recommendations in response to a variety of organization and administrative case problems.

*Three semester hours.*

### 380. FINANCIAL MANAGEMENT.

Capital budgeting, cost of capital, capital structure, and dividend policy are studied in detail.

*Three semester hours.*

### 382. BUSINESS GOVERNMENT RELATIONS.

Through the study and examination of current phenomena such as the military-industrial complex, the industrial state, and our urbanized society, the present and projected roles of business and government in the modern, technologically oriented society is analyzed.

*Three semester hours.*

### 384. MARKETING THEORY.

The study of optimizing criteria available to the marketing manager. Topics covered include: demand theory and measurement, cost theory and measurement, pricing policies, optimal mix, product quality, decisions, advertising, and competitive behavior.

*Three semester hours.*

### 385. STATISTICAL DECISION THEORY II.

Topics in sampling and simulation with special applications of the basic methods for assessment of probabilities that are developed in Statistical Decision Theory I.

*Prerequisite: 350.*

*Three semester hours.*

### 387. ORGANIZATION BEHAVIOR.

The nature of people; their individuality, their personality, their complex and conflicting interests, their role, function and status in groups are examined in order to develop a better understanding of the nature of organizational behavior.

*Three semester hours.*

### 388. COMPARATIVE MANAGEMENT.

A study of adaption to the environment by organizational hierarchies in other countries and cultures. Anthropological, sociological and psychological materials on the impact of culture on management will be considered. *Prerequisite: 387.*

*Three semester hours.*

### 389. THE MANAGEMENT OF MULTINATIONAL BUSINESS.

A study of U.S. Corporations and their international operations in Canada, selected countries in the European area, and the developing countries of Latin America. Investment opportunities, international finance, and the problems of establishing and operating business enterprises in different foreign environments is covered.

*Three semester hours.*

**390. SEMINAR.**

Normally, the terminal course in the program. Application of concepts and techniques acquired in the program to real business problems in an original manner, or the extension of these concepts and techniques. Students are advised to consider their topics early in the graduate program, and are welcome to attend the sessions. For information, see or call the Secretary of the Division. Students who plan to register should make their intention known at the time of fall registration.

Spring semester.

*Three semester hours.*

**399. READINGS IN BUSINESS AND TUTORIAL.**

By arrangement with individual instructor.

*Three semester hours.*

# Chemistry

**DEPARTMENT FACULTY**

Harry C. Allen, Jr., Ph.D., *Professor of Chemistry, Department Chairman*

Edward N. Trachtenberg, Ph.D., *Professor of Chemistry*

Daeg S. Brenner, Ph.D., *Associate Professor of Chemistry*

Karen L. Erickson, Ph.D., *Associate Professor of Chemistry*

Wen-Yang Wen, Ph.D., *Associate Professor of Chemistry*

Allan M. Zwickel, Ph.D., *Associate Professor of Chemistry*

Paul T. Inglefield, Ph.D., *Assistant Professor of Chemistry*

Robert I. Morse, Ph.D., *Assistant Professor of Chemistry*

**UNDERGRADUATE PROGRAM**

In offering a variety of introductory courses in the major branches of modern chemistry, the department seeks to satisfy the needs and desires of (1) those interested in pursuing a career in chemistry, (2) those in related science areas, the proper understanding of which requires a background in chemistry, and (3) the non-scientists who want some knowledge of chemistry as part of their liberal education. In addition to these courses, a large number of more specialized subjects are treated in advanced courses.

The requirements for the chemistry major are eight semesters of chemistry beyond Chemistry 11, two semesters of physics, 10a and 11b or 12b, and two semesters of mathematics beyond Mathematics 11. Biochemistry, advanced mathematics and/or advanced physics courses may be substituted for two semesters of chemistry. As credit toward the major, Chemistry 173 is inadmissible and only one semester of Chemistry 214 or 215 may be used. In addition, all students must satisfactorily complete 36 semester hours outside of Group A and courses in statistics.

Majors are urged to pursue a program leading to certification by the American Chemical Society which requires Chemistry 13, 140, 180, 190, 212, and two advanced level courses in any area of chemistry (including biochemistry). Students planning graduate study in chemistry or additional professional training in the sciences are urged to take Chemistry 113, 200, 230, and/or advanced mathematics and physics courses depending on the area of interest. A reading knowledge of German, French, or Russian is also recommended.

The usual course sequence has at least Chemistry 11 and 13, Mathematics 12, and Physics 10a, 12b or 11b completed by the end of the second year. Chemistry 180, 190, 113, and 140 are usually taken



the junior year. It is advantageous to take advanced mathematics or physics courses and/or biochemistry at this time as well. Honors or Special Projects may be started after completion of Chemistry 180, Chemistry 200, 212, or 230, as well as other advanced level courses and Honors or Special Projects are normally taken during the senior year.

An entering student with a sound background in chemistry is encouraged to take a placement exam at the beginning of the academic year. Satisfactory performance on this examination can satisfy the Chemistry 11 prerequisite for Chemistry 13. This will permit completion of the requirements for the major no later than the junior year, leaving the senior year open for more sophisticated pursuits. Any student considering a chemistry major is urged to arrange for a conference with a member of the department as early as possible, preferably during the first few days of the freshman year. However, it should be noted that the major requirements can be met even if no science courses have been taken freshmen year.

### GRADUATE PROGRAM

The department offers programs leading to the degrees of Master of Arts and Doctor of Philosophy with specialization in various fields of chemistry and in chemical physics. Entering students must take placement examinations in the basic areas of undergraduate instruction: these examinations are used solely for the purpose of arriving at a satisfactory program of courses. Up to one year's equivalent of teaching apprenticeship will be required of all candidates for advanced degrees.

The requirements for the Master's degree are essentially those of the University. The course requirements for the Ph.D. are as follows:

1. All students must demonstrate satisfactory performance (B – or better) in Chemistry 230a, 323a, 340b and 379b. Students specializing in organic chemistry may substitute 200a for 340b.
2. All students must demonstrate satisfactory performance (B – or better) in at least two of the following courses: Chemistry 212b, 242b, 280b, 332b, 333a, 335b, 361a, and 369b.
3. Additional courses may be required by the student's research supervisor.

Qualifying and preliminary examinations must be passed, and the Department language requirement must be met. For further details on formal requirements consult the appropriate departmental publications.

Graduate scholarships, teaching assistantships, research fellowships, NDEA fellowships and NSF traineeships are available. Further information on these awards may be obtained from the department chairman.

### COURSES

#### 1b. THE ROLE OF CHEMISTRY IN SOLVING NATIONAL PROBLEMS.

This course is aimed primarily at the non-science major to acquaint them with the pressing problems facing the nation and the role chemistry can play in solving them. Among the problems to be discussed are air and water pollution, solid waste disposal, mineral supply, urban renewal, transportation, land reclamation and health. The course will consist of lectures and discussions.

*One semester hour.*

Mr. Allen.

#### 10. CHEMISTRY FOR NON-SCIENCE MAJORS.

A one semester course for non-science majors concentrating on fundamentals of chemistry. The course is intended to develop a qualitative feeling about chemistry and its role in the modern world. May be taken as a four or three credit course, three hours of lectures a week with or without a four hour laboratory.

Mr. Morse.

**11. GENERAL CHEMISTRY.**

Systematic study of the elements and their principal compounds and the fundamental laws and theories of chemistry. Primarily for students majoring in the sciences who have had high school chemistry and physics courses. Three lectures and four laboratory hours per week. Indivisible.

*Four semester hours each semester.*

Mr. Brenner, Mrs. Murphy.

**13. ORGANIC CHEMISTRY.**

Lectures on the principles of organic chemistry and a laboratory study of the preparation and properties of important organic compounds. Three lectures and four laboratory hours per week. Laboratory fee. Prerequisite: Chemistry 11.

*Four semester hours each semester.*

Mr. Trachtenberg, Miss Erickson.

**140b. ANALYTICAL CHEMISTRY.**

Theoretical principles and technical methods employed in determining the composition of matter. Two lectures and six laboratory hours per week throughout the semester. Prerequisites: Chemistry 11, 180, and 190 concurrently

*Four semester hours.*

Mr. Morse.

**113a. QUALITATIVE ORGANIC ANALYSIS.**

Laboratory study of the identification of organic compounds by both classical and modern instrumental techniques. Prerequisite: Chemistry 13 or consent of the instructor. One hour conference and 7 hours of laboratory per week.

*Three semester hours.*

Miss Erickson.

**173. MATHEMATICS FOR CHEMISTS.**

Discussion of such topics as series, fourier series, special functions, fourier transforms, matrices. One lecture per week.

*Variable credit.*

Mr. Morse.

**180a. PHYSICAL CHEMISTRY I.**

Principles of physical chemistry applied to gases, liquids and solids; chemical thermodynamics; solution chemistry. Three lectures and three laboratory hours per week. Prerequisites: Physics 11b or 12b, Mathematics 12, a grade of C or better in Chemistry 11 or 13 or permission of instructor; Chemistry 13 and 14a may be taken concurrently. Additional course work in mathematics is recommended.

*Four semester hours each semester.*

Mr. Inglefield, Mr. Morse.

**190b. PHYSICAL CHEMISTRY II.**

Electrode processes, chemical kinetics and atomic and molecular spectroscopy. Prerequisite: Chemistry 180a. Three lectures and three laboratory hours per week.

*Four semester hours.*

Mr. Inglefield, Mr. Zwickel

**200a. PHYSICAL CHEMISTRY III.**

Elementary quantum-mechanical treatment of the structure of nuclei, atoms and molecules. Three lectures per week. Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Brenner.

## 86 CHEMISTRY

### 212b. INORGANIC CHEMISTRY.

Theoretical and descriptive inorganic chemistry. Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Zwickel.

### 214. SPECIAL PROJECTS.

Individual work of an investigative nature which may include a search of chemical literature as well as laboratory work.

*Three semester hours each semester.*

Staff.

### 215. HONORS COURSE.

Primarily for majors seeking departmental honors in chemistry. A laboratory research project and participation in departmental seminar.

*Three semester hours each semester.*

Staff.

### 230b. PHYSICAL ORGANIC CHEMISTRY.

Fundamentals of organic chemistry. Molecular structure, acidity and basicity, kinetics and mechanisms with emphasis on the most recent advances in organic chemical theory. Prerequisites: Chemistry 13, 180a, 190b or consent of the instructor.

*Three semester hours.*

Mr. Trachtenberg.

### 242b. NUCLEAR SCIENCE.

Fundamentals of nuclear chemistry and physics; production, isolation, identification and measurement of radioactive atoms. Three lectures and three laboratory hours per week. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Brenner.

### 280b. INSTRUMENTAL METHODS.

The principles and application of modern instrumental techniques to the separation and analysis of mixtures and for the characterization of pure compounds. Two lectures and six laboratory hours per week. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Brenner.

### 300. RESEARCH.

*Three to fifteen semester hours each semester.*

Staff.

### 322b. THERMODYNAMICS.

Applications of classical thermodynamics to chemical systems.

*Three semester hours.*

Mr. Morse.

### 323a. STATISTICAL MECHANICS.

Statistical mechanical analogs of thermodynamic functions and their application to chemical systems.

Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Wen.

### 333b. SYNTHETIC ORGANIC CHEMISTRY.

Lectures on synthesis of organic molecules emphasizing scope and limitations of general methods, mechanism and stereochemistry. Synthesis of carbon to carbon bonds, oxidation and reduction. Prerequisite: Chemistry 230a, or consent of the instructor. Offered in alternate years.

*Three semester hours.*

Miss Erickson.

**335b. NATURAL PRODUCTS.**

The chemistry of selected naturally occurring compounds. Structure determination, synthesis, mechanistic interpretation of exotic transformations, and biogenetic theory. Prerequisite: consent of the instructor. Offered in alternate years.

*Three semester hours.*

Miss Erickson.

**340b. QUANTUM CHEMISTRY.**

Elementary quantum mechanics of simple systems, properties of wave functions, approximation methods for complex systems.

*Three semester hours.*

Mr. Morse.

**341a. ADVANCED QUANTUM CHEMISTRY.**

Approximation methods, atomic states, spectroscopy and molecular methods. Prerequisite: Chemistry 340b or consent of the instructor.

*Three semester hours.*

Mr. Brenner.

**344a. SELECTED TOPICS IN ADVANCED NUCLEAR CHEMISTRY.**

Discussion of current experimental and theoretical literature in nuclear reactions, fission, and nuclear spectroscopy. Prerequisite: Chemistry 242b or equivalent.

*Three semester hours.*

Mr. Brenner.

**350. SEMINAR.**

Reports on research work and discussions of recently published work. No credit.

Guest Lecturers, Staff and Graduate Students.

**360b. COORDINATION COMPOUNDS.**

Chemical and physical properties of complexes, including theories of coordination, stereoisomerism, reaction mechanisms and solution stabilities. Offered in alternate years.

*Three semester hours.*

Mr. Zwickel.

**361b. MOLECULAR STRUCTURE.**

Physical methods relevant to the determination of the structure of molecules (x-rays, electron diffraction, magnetic resonance, electronic properties, etc.). Prerequisite: consent of the instructor. Offered in alternate years.

*Three semester hours.*

Mr. Ingfield.

**369a. ELECTRONIC SPECTROSCOPY.**

Introduction to the studies of ultraviolet and visible absorption spectra as well as emission spectra. Prerequisite: consent of the instructor. Offered in alternate years.

*Three semester hours.*

Mr. Wen.

**379b. SPECIAL TOPICS.**

Research seminars; reports by graduate students.

*Three semester hours.*

Staff.

**380. RESEARCH CONFERENCE.**

Informal reports of research work being done in the laboratory. No credit.

Staff and Graduate Students.



## Classics

### DEPARTMENT FACULTY

Claude W. Barlow, Ph.D., *Professor of Classics\**

Clark students may take for credit through the Consortium appropriate courses in Latin and Greek offered by the College of the Holy Cross and Assumption College.

\*On leave of absence 1971-72.

## Comparative Literature

### COMP. LIT. 18. LITERATURE AND THE NATURE OF MAN.

Ideas held by outstanding literary artists of the Western World concerning the nature of man and his relation to the universe. The works are also to be studied as representative of the cultures of which they are products. The subject matter discussed includes Sophocles' *Oedipus the King*, the *Book of Job*, Dante's *Divine Comedy*, Shakespeare's *King Lear*, Milton's *Paradise Lost*, Moliere's *Misanthrope*, Goethe's *Faust*, and selected poems of T.S. Eliot. All non-English works are read in translation. Admission subject to the consent of the instructor.

*Four semester hours each semester.*

Mr. King, Mr. Anderson.

### COMP. LIT. 19a. SURVEY OF THE HEBREW SCRIPTURES – PENTATEUCHAL AND HISTORICAL BOOKS.

Not offered, 1971-72.

### COMP. LIT. 20a. SURVEY OF THE HEBREW SCRIPTURES – PROPHETIC AND WISDOM LITERATURE.

An analysis of the relevant texts in terms of their historical, social and religious background and their role in shaping the thinking of the Biblical Age. *Comp. Lit. 19a is a prerequisite for Comp. Lit. 20a.*

*Three semester hours each course.*

Rabbi Klein.

### ENGLISH 150a. LITERATURE OF WESTERN CIVILIZATION.

Not offered, 1971-72.

See description under English.

### ENGLISH 245b. SEMINAR: MODERN CONTINENTAL FICTION.

See description under English.

Not offered, 1971-72.

### GERMAN 197b. THE FAUST THEME IN LITERATURE AND MUSIC.

See description under German.

Not offered, 1971-72.

### GERMAN 199. THE GERMAN CONTRIBUTION TO WORLD LITERATURE.

See description under German.

Mr. Arndt.

### FRENCH 130a. MODERN FRENCH NOVEL.

See description under French.

### FRENCH 130b. THE THEATER OF REVOLT.

See description under French.

### SPANISH 130a. CERVANTES.

See description under Spanish.

**GERMAN 16. FRESHMAN COLLOQUIUM ON MODERN GERMAN LITERATURE.**

See description under German.

Mr. Schatzberg.

**GERMAN 145a. THE MEDIAEVAL COURTLY EPIC IN GERMAN LANDS.**

See description under German.

Mr. Edwards.

**GERMAN 150a. BAROQUE AND ROCOCO ART AND LITERATURE IN  
THE GERMAN LANDS.**

See description under German.

Mr. Edwards.

**GERMAN 160b. THE QUEST FOR THE PERFECT SOCIETY IN GERMAN  
LIFE AND LITERATURE.**

See description under German.

Mr. Arndt.

**GERMAN 190a. GOETHE.**

See description under German.

Mr. Arndt.

**GERMAN 192b. SCHILLER.**

See description under German.

Mr. Arndt.

## Computer Science

The courses in the area of Computer Science listed below are available to Clark students. They involve the use of the 1620 on campus and the RCA 70/46 currently housed on the Worcester Tech campus. For other Computer Science courses see the Worcester Tech catalog.

**100a. COMPUTER APPRECIATION.**

The topics of computer software, hardware and applications are covered. Included will be a treatment of computer information systems, computer graphics and computer model building techniques. The course is designed to introduce the student to the capabilities and limitations of modern computing systems. This is not a programming course. Freshmen may enroll.

*Three semester hours.*

Mr. Howard.

**101b. FORTRAN IV AND BASIC PROGRAMMING.**

The fundamentals of FORTRAN IV and BASIC are presented. The course is designed for students with no mathematics beyond high school algebra.

*Three semester hours.*

Mr. Howard.

**102b. COMPUTER APPLICATIONS.**

The topics of storage and retrieval, file design, simulation, queuing, and computer aided instruction are covered. Several projects requiring programming skills are required.

**140b. ASSEMBLY PROGRAMMING.**

The elements of assembly language programming are introduced.

**150b. COMPUTER SIMULATION TECHNIQUES.**

Simulation and model building techniques will be stressed. Random number generators, plus tests of model validity will be introduced. Programming experience is required.

*Three semester hours.*

Mr. Howard.

## 90 ECONOMICS

### 175b. COMPUTER GRAPHICS.

The use of line printers, video units, cathode ray tubes and digital plotters as devices to display information will be introduced. Students will be assigned individual projects. Programming experience is recommended.

*Three semester hours.*

Mr. McCleary, Mr. Howard.

### 201b. ADVANCED COMPUTER PROGRAMMING.

The course is designed for students with previous programming experience. Advanced programming techniques will be introduced. These will include: string manipulations, subroutines, and use of external storage devices.

*Three semester hours.*

Staff.

### GEOGRAPHY 248b. MODEL BUILDING TECHNIQUES.

The systems analysis approach to problem formulation and linear programming techniques are presented. Individual projects are required.

*Three semester hours.*

Mr. Howard.

### GEOGRAPHY 249a. FORTRAN IV PROGRAMMING FOR GEOGRAPHY.

Designed for students with no mathematics beyond high school algebra. Emphasis on numeric applications.

*Four semester hours.*

Mr. Howard.

### MATHEMATICS 212a. NUMERICAL ANALYSIS.

Calculus of finite differences, introduction to the theory of interpolation, error analysis, direct and iterative methods for solving equations and systems of equations. Prerequisite: Mathematics 13.

*Four semester hours.*

Mr. Stubbe.

## Economics

### DEPARTMENT FACULTY

Roger C. Van Tassel, Ph.D., *Professor of Economics, Department Chairman*

James A. Maxwell, Ph.D., *Professor of Economics, Emeritus*

Howard W. Nicholson, Ph.D., *Professor of Economics*

David Ott, Ph.D., *Professor of Economics*

Attiat Ott, Ph.D., *Professor of Economics*

Harold T. Moody, Ph.D., *Associate Professor of Economics and Business Administration*

Frank W. Puffer, Ph.D., *Associate Professor of Economics*

Peter Sloane, Ph.D., *Associate Professor of Economics and Education*

Alan F. Gummerson, A.B., *Assistant Professor of Economics*

Donald E. Wise, Ph.D., *Assistant Professor of Economics*

Robert C. Hsu, Ph.D. *Assistant Professor of Economics*

Albert J. Sargent, Ph.D., *Assistant Professor in Business Administration*  
(part-time)

James Brundy, Ph.D., *Assistant Professor of Economics*

## UNDERGRADUATE PROGRAM

The undergraduate program is designed to give the student a comprehensive grasp of the underlying principles and functions of economic institutions, and to develop habits of systematic thought. Economics 11 is a prerequisite to all other courses in Economics. Majors in Economics are required to take Economics 205a, Intermediate Economic Theory, and Economics 205b, National Income Analysis and are strongly advised to take Economics 160, Introduction to Statistical Method. Students planning on graduate study in Economics are advised to elect courses in Economic Theory, Statistics and Econometrics, and Mathematics. Some courses in Economics and Business offered in the Evening College may be counted toward the major with the approval of the department chairman.

In addition, at least 36 semester hours of a major's program must be selected from other than related fields and courses listed with the Registrar's office and the departmental undergraduate advisor.

Candidates for departmental honors may engage in a program of independent study off-campus during one semester of the junior year. These students may work for business firms or government agencies in applied economic research and receive academic credit.

Some advanced courses may be offered only in alternative years. Detailed course descriptions are available at the department office and at the Registrar's office.

## GRADUATE PROGRAM

The University offers facilities for graduate study and research leading to the Master of Arts degree and Doctor of Philosophy degree in Economics for a small number of selected students.

Graduate students may elect to take a limited amount of work in related courses offered by other departments.

Scholarships and fellowships are available for a limited number of well-prepared students. These appointments exempt their holders from tuition fees and some carry stipends in varying amounts. Several teaching assistantships are also awarded which enable graduate students to gain experience in undergraduate instruction. These carry remission of tuition and a cash payment, up to \$2,600 for part-time work (one-half).

## MASTER OF ARTS PROGRAM

Students interested primarily in an M.A. Degree as a terminal degree are normally not admitted to graduate study. The M.A. may be awarded to graduate students who have completed the appropriate course and residence requirements. Students may be awarded the M.A. Degree upon satisfactory completion of the Ph.D. oral examination; or, in the case of students who do not continue toward the Ph.D., upon satisfactory completion of an approved program of 24 semester hours of course work, the writing of an M.A. Thesis and an oral examination.

A student should discuss his plans with the graduate student advisor on or before Registration Day and secure approval of his course program.

## DOCTOR OF PHILOSOPHY PROGRAM

The department offers two related Ph.D. programs: (1) the traditional program and (2) the TTT program. The TTT program is designed to train graduate students in the discipline of economics and in the process of education. All the requirements of the traditional program must be met except that one of the special fields offered for examination and the dissertation are expected to be in the area of economic education. Also TTT fellows are expected to participate as fully as possible in interdisciplinary and in summer programs specifically related to the objectives of this three-year program. The traditional program is described below.



## 92 ECONOMICS

Two full academic years of graduate work, or its equivalent in part-time work, is necessary for admission to Ph.D. candidacy. One of these years must be spent in residence at Clark University. In residence is broadly defined as work done at Clark University under the immediate personal supervision of at least one member of the University faculty. For the degree of Doctor of Philosophy, twenty-four semester hours is a normal full-time program.

All candidates for the Ph.D. in Economics are required to demonstrate proficiency in Econometrics and Mathematical Economics, i.e., by passing designated courses offered in the Department or, in the case of prior preparation, by passing a test given by the Department.

Each student in the Ph.D. program is required to demonstrate proficiency in Economic Theory. The Economic Theory requirement includes Micro-theory, Macro-theory and the History of Doctrine. Use of mathematics may be required in the examination in Economic Theory. The student satisfies the Economic Theory requirement by passing a six-hour written examination. The examination is taken, normally, shortly after completion of the graduate theory courses.

Upon completion of the Economic Theory and other required preparations, the student takes a written examination in his three special fields. These fields may be selected from among the following: Money and Banking, Public Finance, Industrial Organization, International Trade, Labor, Regional Economics, Econometrics, Advanced Theory or one field selected from related subjects. If Econometrics or Advanced Theory is selected as a special field, the level of performance required is substantially higher than the general requirement in Econometrics and Economic Theory for all Ph.D. candidates. The choice of fields must be cleared in advance with the graduate student advisor. Soon after having passed the full exams, each student is expected to make a presentation before an informal conference with his dissertation committee demonstrating *both* the extent of his knowledge of his Dissertation field and the feasibility of the proposal topic.

Upon completion of the Dissertation in a form acceptable to his committee, the candidate will provide a copy of the Dissertation to the Department, the staff and graduate students in the department. After a period of approximately two weeks, to permit a wider reading of the Dissertation within the department, the candidate will present his Dissertation at a seminar open to all staff and graduate students in the Department. Final approval of the Dissertation will be granted by the committee after consideration of any suggestion of changes or challenges arising from the final seminar.

The dissertation must be a real contribution to knowledge, based upon independent research, convincingly presented, and acceptably written.

Some teaching experience at Clark or such other teaching as the Department may regard as equivalent, is prerequisite to the Doctor's degree.

### COURSES

#### 11. PRINCIPLES OF ECONOMICS.

Open to freshmen. One semester course offered both semesters. Multiple sections.

*Four semester hours each semester.*

Staff.

#### 11a. PRINCIPLES OF ECONOMICS.

Course designed to acquaint students with basic tools of economic analysis by confronting social problems demanding the use of these tools. Problems which may be treated are unemployment, inflation, national priorities, environment, poverty, U.S. relations with less developed countries, international trade and monetary problems.

*Four semester hours.*

Mr. Gummerson.

**12b. CONTEMPORARY ECONOMICS.**

This course permits the non-economics major to develop a working knowledge of current economic problems. Readings which require very limited technical skill or knowledge are assigned. Students are expected to participate actively in discussions. Prerequisite: Economics 11.

*Four semester hours.*

D. Ott.

**113a. MONETARY ECONOMIC THEORY & POLICY**

The theory of money, its role in the modern economy. Determinants of the supply of money and analysis of the role of monetary policy in stabilization policy.

*Four semester hours.*

D. Ott.

**123. SPECIAL PROJECTS.**

Selected topics offered by various staff members both semesters. Variable credit, team teaching. Students can take several *different* courses under this number. Detailed description at Department office and with undergraduate advisor. Economics 11 prerequisite.

*Four semester hours.*

Messrs. Brundy, Gummerson and Puffer.

**142b. ECONOMICS OF UNDERDEVELOPED REGIONS.**

An analysis of underdeveloped nations. Economic, cultural, social, and political factors that have an importance in economic development. Prerequisite: Economics 11.

*Four semester hours.*

Mr. Gummerson.

**115a. PUBLIC EXPENDITURES & TAXATION.**

Issues of priorities in the composition and size of public expenditures. Evaluation of the Federal budget (expenditures and revenues) according to criteria of efficiency, equity and administrability. Examination of goals of employment, price stability, and growth and role of fiscal policy instruments in achieving them.

*Four semester hours.*

D. Ott.

**150 CRITIQUES OF THE AMERICAN ECONOMY.**

Course will examine radical critiques of U.S. economy. A neo-Marxist analysis will provide an overview followed by in-depth examinations of alleged U.S. economic imperialism, the extent of the economy's dependence on military spending, and the nature of income distribution and poverty in the U.S.

*Four semester hours.*

Mr. Gummerson.

**160a. INTRODUCTION TO STATISTICAL ANALYSIS.**

The theory and application of frequency distributions; measures of central tendency; dispersion; skewness and kurtosis. An introduction to probability theory; estimation by confidence interval; acceptance sampling; quality control; analysis of variance; and other statistical tests of significance complete consideration of univariate distribution. Prerequisite: Mathematics 11 or equivalent.

*Four semester hours.*

Mr. Sargent.

**160b. INTRODUCTION TO STATISTICAL ANALYSIS.**

Problems are integrated with a systematic presentation of principles and methods. Topics include price and quantity indexes; seasonal trend and cycle analysis; linear and curvilinear regression and consideration of the stochastic ( $U_t$ ) term. Finally, tests of statistical significance on the parameters of the regression equation are made. Prerequisite: Economics 160a.

*Four semester hours.*

Mr. Sargent.

## 94 ECONOMICS

### 176a. THE CHINESE ECONOMY.

The economic policies, organization, performance, and structural changes in Mainland China, Chinese experience compared with that of Japan and Soviet Union in their early period of economic development and with that of contemporary India.

*Four semester hours.*

Mr. Hsu

### 176b. COMPARATIVE ECONOMIC SYSTEMS.

This course surveys the models, planning and production organization of various economic systems in the modern world.

*Four semester hours.*

Mr. Hsu.

### 204. ECONOMIC EDUCATION.

Designed to analyze and evaluate the content, structure and tools of social science curricula at the elementary and secondary levels. Emphasis will be upon innovative, interdisciplinary programs incorporating economic concepts. The objective will be to design experimental projects for testing under classroom conditions. Two semesters.

*Four semester hours.*

Mr. Sloane.

### 205a. INTERMEDIATE ECONOMIC THEORY.

An analysis of contemporary price theory.

*Four semester hours.*

Mr. Ott.

### 205b. MACRO ECONOMICS, THEORY AND POLICY.

A study of contemporary theory.

*Four semester hours.*

A. Ott.

### 207a. INTERNATIONAL ECONOMICS.

Development of International Trade Theory, adjustment mechanisms and evaluation of major issues in international economic policy.

*Three semester hours.*

Mr. Van Tassel.

### 222a. LABOR AND MANPOWER.

Not offered, 1971-72.

A survey of the nature of labor economics and labor problems, including the several approaches of organized workers and employers to these problems.

*Four semester hours.*

Mr. Wise.

### 224. HISTORY OF ECONOMIC DOCTRINE.

Beginning with brief survey of ancient writers, medieval schoolmen and mercantilist authors, this course focuses on the evolution of economic analysis from the time of classical writers to the 1960's and stresses developments in methods by which man has attempted to better understand economic phenomena.

*Four semesters hours.*

Mr. Nicholson.

### 226a. INDUSTRIAL ORGANIZATION AND GOVERNMENT CONTROL.

Examination of the various forms of governmental regulation applied to our present industrial organization. Appraisal of existing governmental controls in specific industrial situations.

*Three semester hours.*

Mr. Nicholson.

226b. PROBLEMS IN INDUSTRIAL ORGANIZATION. Not offered, 1971-72.  
Problems of market organization, behavior, and public policy. Conducted on a seminar basis.  
*Four semester hours.*

265b. INTRODUCTION TO ECONOMETRIC PROBLEMS.  
An introduction to the problems and techniques arising in the application of statistics to economic data. Prerequisite: Economics 160a.  
*Four semester hours.* Mr Puffer.

265b. ECONOMETRIC APPLICATIONS.  
Application of econometric techniques to economic research problems. Analysis of econometric applications in the professional literature. Prerequisite: consent of instructor.  
*Four semester hours.* Mr. Puffer.

271 a. and b. INTRODUCTION TO MATHEMATICAL ECONOMICS.  
An introductory survey of the use of mathematical methods in economic analysis. Special attention is given to the mathematical framework of the theory of price determination. Prerequisite: consent of the instructor.  
*Four semester hours each semester.* Staff.

272b. MATHEMATICAL ECONOMICS. Not offered, 1971-72.  
Mathematical approach to Microeconomic Theory including general equilibrium. Intended for advanced undergraduate students with some knowledge of calculus and linear algebra. This course may be taken in lieu of Economics 205a. Prerequisite: consent of instructor.  
*Four semester hours.* Staff.

277a. REGIONAL ECONOMICS.  
Theoretical and practical aspects of economic development, cyclical changes and trade between regions of the United States. Location theory, growth trends, wage and income differentials, structural unemployment and inequalities in income distribution are considered. Interregional input-output tables emphasized. Prerequisite: Economics 11, or one advanced economics course.  
*Four semester hours.* Mr. Moody.

277b. PROBLEMS IN REGIONAL ECONOMICS.  
The application of regional econometric theory and regional resource management to problems in regions in the United States.  
*Four semester hours.* Mr. Moody.

280. JUNIOR HONORS.  
Designed to assist honors candidates in integration of the field. Staff.

281. SENIOR HONORS.  
*Four semester hours each semester.* Staff.

282. HONORS.  
Eligible students selected by the department may work off campus for a summer and a semester as junior professional Economists in business, government, or industry and receive full academic credit for a semester's work. Staff.



301a,b. ECONOMIC THEORY, MICRO-ECONOMICS.

See graduate student advisor for list of seminars offered and current topic coverage. The theory courses are offered each year. Special field seminars are offered in response to student interest.

*Four semester hours each semester.*

A. Ott, Mr. Wise.

302a,b. ECONOMIC THEORY — MACRO.

A study of the variables of macroeconomics. Prerequisite: consent of instructor.

*Four semester hours each semester.*

Mr. Puffer, D. Ott.

303 a,b. ADVANCED THEORY

Not offered, 1971-72.

*Four semester hours each semester.*

D. Ott.

313a. and b. SEMINAR IN MONETARY ECONOMICS.

*Four semester hours each semester.*

322a,b. LABOR SEMINAR.

*Four semester hours each semester.*

Mr. Wise

325a,b. PUBLIC FINANCE SEMINAR.

Not offered, 1971-72.

*Four semester hours each semester.*

A. Ott.

326a,b. INDUSTRIAL ORGANIZATION SEMINAR.

Not offered, 1971-72.

*Four semester hours each semester.*

Mr. Nicholson.

327 a. and b. INTERNATIONAL TRADE SEMINAR.

*Four semester hours each semester.*

Mr. Van Tassel.

328 a. and b. ECONOMIC DEVELOPMENT.

*Four semester hours each semester.*

Not offered, 1971-72.

Mr. Hsu.

377a,b. REGIONAL SEMINAR.

*Four semester hours each semester.*

Mr. Moody.

390 a. and b. ECONOMETRICS SEMINAR.

The application of statistical techniques to the verification of economic postulates and problems. Topics considered are: the linear normal regression model, single equation econometric problems, simultaneous equation estimating techniques, spectral analysis and factor analysis. Prerequisite: consent of instructor.

*Four semester hours each semester.*

Mr. Brundy.

# Education

## DEPARTMENT FACULTY

William C. Kvaraceus, Ed.D., *Professor of Education and Sociology, Department Chairman*

Helen J. Kenney, Ed.D., *Professor of Education*

Richard P. Boardman, Ed.D., *Assistant Professor of Educational Sociology*

Peter E. Sloane, Ph.D., *Associate Professor of Economics and Education*

Marcia A. Savage, Ed.D., *Assistant Professor of Education*

Irving A. Schwartz, M.A., *Assistant Professor of Education and Clinical Instructor in Social Studies*

William E. Topkin, Ed.D., *Assistant Professor of Education*

David Zern, Ph.D., *Assistant Professor of Education and Adjunct Assistant Professor of Psychology*

Spencer R. Potter, Ed.D., *Lecturer in Education*

Eleanor R. Moosey, Ed.D., *Lecturer in Education*

Mitchell P. Lichtenberg, M.A.T., *Director, Training Complex Project*

Donald E. Pierson, Ph.D., *Affiliate Assistant Professor in Education*

Philip R. Zelazo, Ph.D., *Lecturer in Education*

With the cooperation of Professor Reid of the Department of Romance Languages, Professor Warman of the Department of Geography, Professor Beck of the Department of Philosophy, Alexander Radzik, Liaison and Clinical Instructor in Education, David Braley, Clinical Instructor in Education.

## UNDERGRADUATE PROGRAM

The department encourages all students who may be interested in preparing for careers in education to consult with some member of its staff early in their careers at the University. The actual election of courses in education, however, should be postponed until the junior year. During the first two years, students should complete as many of the specific requirements for the degree of Bachelor of Arts as possible, and lay a broad foundation of scholarship in the subjects in which they wish to specialize.

In conformity with its policy of emphasizing the importance of scholarly background, the department offers its courses as electives, and not as undergraduate majors.

However, to enable those students contemplating teaching careers the Department provides an internship in the senior year as a transition to professional study at the graduate level, and for entry into beginning teaching positions. The internship module is limited to seniors who have completed major requirements at a satisfactory level of scholarship. Most interns carry the module for a 12 to 15 credit block during either the first or second semester. Decision to elect the internship module must be made before the end of the junior year, and must be approved by the Department of Education and reviewed by academic departments for competency in subject matter areas.

## GRADUATE PROGRAM

The department offers one program leading to the degree of Master of Arts in Education and another leading to the degree of Doctor of Education.

*Master of Arts in Education:* For graduate students wishing to prepare for teaching and/or guidance in public or private secondary or elementary schools, the department offers a fifth-year program leading to the degree of Master of Arts in Education.

*Admission Requirements:* In addition to the general admission requirements to the Graduate School, a personal interview is usually required by the Department of Education.

*Programs Available:* Two programs leading to the degree of Master of Arts in Education are available:

1. A full or part time program in teacher preparation for students with a bachelor's degree and strong academic background. Superior students may complete this program in one year. It includes advanced work in the academic fields and internship experiences.
2. A transitional program in educational psychology and educational sociology leading to doctoral work in these fields.

*Program Requirements:*

1. *Courses:* For further details on course requirements, consult the Department of Education.
2. *Internships:* The department provides opportunities for an extended internship experience under supervision for all graduate students. For graduate students who have not had teaching experience, satisfactory work in internship teaching is a requirement for the degree of Master of Arts in Education.
3. *Thesis or Additional Study in Lieu of Thesis:* All candidates for the degree of Master of Arts in Education must choose one of the following plans:
  - (a) Prepare an acceptable thesis.
  - (b) Elect, in lieu of thesis, two additional semester courses.
  - (c) Elect, in lieu of thesis, a seminar in which intensive work will be required in preparing and presenting reports before fellow graduate students and a member of the staff.
4. *Final oral examination:* The passing of a final oral examination will be required of all candidates.

*Doctor of Education:* A new program for the degree of Doctor of Education has been established with two emphases: (1) on human development and learning as it relates to curriculum, instruction, and evaluation; and (2) on the sociology of education. The new Doctorate aims to prepare two kinds of specialists, one who would function as an educational analyst and one as a social analyst. Applicants for admission to the program will be expected to give evidence of high scholarly achievement and leadership promise in their chosen field. Other evidence of potential such as results from Graduate Record Examinations, Miller Analogies, etc. may be required. Personal interviews with staff of the Department are required before applications are acted upon. In special cases, foreign students may be excused from the Examination and interview requirement.

The department admits to graduate work only those students who plan to enroll in the Ed.D. program on a full-time basis. A residence requirement demands a minimum of full-time study (not less than 24 semester hours credit beyond the master's degree). The student is required to pass his course work with distinction. The number of courses to be taken is determined through individual assessment but generally calls for four or five semesters of full-time study beyond the master's program. Language requirements in the Department are optional and relate to the student's background and future professional goals. Competency in the field of education as a whole and in areas of specialization is determined by written and oral examinations. The student is also required to demonstrate his ability to conduct independent research through the planning and execution of an acceptable dissertation. The dissertation is usually started during the second year of study and completed in the third or fourth year. The length of the program, however, will vary according to the student's individual needs and abilities. A final oral examination centered around the dissertation and course work in the general field of education and in the areas of concentration must be passed to complete the degree requirements.

## COURSES

**200a.b. GEOGRAPHY IN EDUCATION.**

Refer to description under Geography 200a and b.

*Three semester hours each semester.*

Mr. Warman.

**201a. EDUCATIONAL PSYCHOLOGY: CHILD GROWTH AND DEVELOPMENT.**

Principles of child development with emphasis upon maturation, learning and personality development in the elementary school years. Recommended for those planning to take Internship Module.

*Three semester hours.*

Section 1, Miss Savage; Section 2, Mr. Zern.

**201b. EDUCATIONAL PSYCHOLOGY: ADOLESCENT GROWTH AND DEVELOPMENT.**

Principles of adolescent development with special emphasis upon learning and personality development in the secondary school years. Recommended for those planning to take Internship Module.

*Three semester hours.*

Section 1, Miss Savage; Section 2, Mr. Zern.

**204a.b. ECONOMIC EDUCATION: ELEMENTARY SCHOOL.**

Designed to analyze and evaluate the content, structure and tools of social science curricula at the elementary and secondary levels. Emphasis will be upon innovative, interdisciplinary programs incorporating economic concepts. The objective will be to design experimental projects for testing under classroom conditions.

*Three semester hours each semester.*

Mr. Sloane.

**217a.b. INTERNSHIP TEACHING.**

An intensive period of observation and teaching in the field or fields in which the student plans to teach. Individual supervision is given by the department and by teachers in co-operating schools. Admission on consent of the Department. Limited to graduate students in M.A. in Ed. Program.

*Six semester hours.*

Miss Kenney, Staff and Co-operating Teachers.

**220a. SOCIAL FOUNDATIONS OF EDUCATION.**

An introductory inquiry into the major social dimensions of the American educational system, with special emphasis on urban educational problems, teachers and teaching, non-public education and educational change. Ample opportunity for preinternship field experiences and independent study.

*Three semester hours.*

Mr. Boardman.

**221. INTERNSHIP TEACHING IN MUSIC.**

Consent of Music Department required.

Staff and Co-operating Teacher.

**226a. CONTEMPORARY APPROACHES TO EDUCATION.**

The course will consider some of the critical issues and contemporary approaches to education.

*Three semester hours.*

Mr. Topkin.

**233a.b. SOCIAL STUDIES: CURRICULUM MATERIALS & METHODS.**

*Three semester hours.*

Mr. Lichtenberg.



234. FIELD PROJECTS.

Provides individualized and extended experiences in a wide variety of agencies and institutions involving the education and comprehensive care of children and youth. Supervision is provided by the University and field agency personnel; combines related seminars and conferences as a basis for critical analysis of the experiences within the context of applied theory and practice.

More than one project may be undertaken at the same time and the course may be repeated more than once around a different project.

*Variable credit.*

Miss Kenney, Mr. Kvaraceus & Staff.

238a. and b. FIELD STUDY IN SOCIAL STUDIES MATERIALS & METHODS.

This course examines the use of museum and community resources in the social studies curriculum. Classes will be held at Old Sturbridge Village and will meet for eight Friday-Saturday sessions scheduled approximately once a month throughout the school year. Enrollment is limited and by permission of instructor.

*Three semester hours.*

Mr. Lichtenberg.

250b. WORK AND PLAY: IMPLICATIONS FOR SCHOOL AND SOCIETY.

A view of occupational and recreational theory as it pertains to developing individuals – the course encourages concern for a balance between these aspects of growth.

*Three semester hours.*

Mr. Potter.

251a. AMERICAN YOUTH IN SCHOOL AND SOCIETY.

Considers the role, development, and education of youth with special consideration of youth's involvement in the changing school system and other youth-serving agencies and institutions.

*Three semester hours.*

Mr. Kvaraceus.

280b. JUVENILE DELINQUENCY AND THE SCHOOL.

Considers the role of the school as a central agency in the prevention and control of norm-violating behavior.

*Three semester hours.*

Mr. Kvaraceus.

287. INTERNSHIP MODULE IN EDUCATION.

The internship provides an intensive work-study experience in elementary and secondary schools and other educational agencies in the Worcester area. It involves theoretical course work; a full-time supervised work experience in schools or in some other educational, welfare, and recreation agency; and related workshops, seminars, and conferences.

The module provides credit in the following areas: student teaching (6 credits) with the remainder of the 12 to 15 credits distributed according to individual student needs among units covering curriculum development, methods and materials of instruction, and tests and measurement.

The internship offers a wide variety of specialized learning opportunities to meet the different interests and backgrounds of the students. These include experiences in educational testing and diagnosis, educational research, curriculum construction and experimentation and school administration as well as in classroom teaching and individual tutoring.

Limited to seniors who will have completed major requirements and whose grade point average reflects high level of scholarship.

*Twelve to fifteen semester hours.*

Miss Kenney, Staff and Co-operating Teachers.

**290a. PHILOSOPHY OF EDUCATION.**

The aims, processes and materials of education with special reference to the influence of philosophical ideas on educational problems.

*Three semester hours.*

Mr. Beck.

**295a.b. THE TEACHER AND TEACHING.**

A curriculum for teachers which ranges from essential knowledge (the problem of the concept of man and nature) to existential knowledge (the "who am I" problem) and the relationship of these to interpersonal relations, group processes, curriculum development, and personal growth.

*Three semester hours each semester.*

Mr. Schwartz.

**304a. SEMINAR: GEOGRAPHY AND ITS TEACHING.**

The seminar will have three major themes. One will deal with the philosophical background and the growth of geography *per se*. The second theme will have to do with techniques. The third theme will be the relationship of geography to other subjects. Discussion leaders and topics will be assigned according to the specific interests of those in the seminar.

*Three semester hours.*

Mr. Knos and Mr. Warman.

**305b. GROUP PROCESSES IN EDUCATION.**

A study of group phenomena with emphasis upon the small group in teaching and counseling.

*Three semester hours.*

To be announced.

**310. BASIC RESEARCH METHODS IN EDUCATION — STATISTICS AND DESIGN.**

An intensive introduction to methods of research in education including basic principles of statistics, design, sampling and instrument construction. Special emphasis will be placed on those techniques central to educational research. This course is planned as a part of the core graduate sequence.

*Six semester hours.*

Miss Kenney, Mr. Boardman.

**311a. PRINCIPLES AND PRACTICES OF GUIDANCE.**

Consideration will be given to the rationale for pupil personnel services in the public schools and to the organization and means by which the services may be organized and offered to the student body.

*Three semester hours.*

Mr. Potter.

**313a. THE ROLE OF EVALUATION IN EDUCATION.**

A comprehensive review of research and trends on the role of evaluation in the educative process. A major emphasis will be placed on the development and utilization of strategies to assess the effectiveness of educational innovations. This course is planned as a part of the graduate sequence in the program preparing educational analysts.

*Three semester hours.*

Miss Kenney.

**314a. TESTS AND EVALUATION: THEORY AND TECHNIQUES OF MEASUREMENT AND APPRAISAL.**

The methods and problems involved in the evaluation of abilities, interests, and achievement of children and youth, both by standardized instruments and by special purpose measures.

*Three semester hours.*

To be announced.

## 102 EDUCATION

### 314b. TESTS AND EVALUATION: ADVANCED TECHNIQUES.

The measurement and evaluation of aptitudes, attitudes, and personality with special attention to the diagnosis of learning difficulties.

*Three semester hours.*

To be announced.

### 317a. INDIVIDUAL ASSESSMENT OF MENTAL ABILITIES.

Theory and intensive experience in administering and interpreting individual tests of intelligence with major emphasis on Stanford-Binet Revision and Wechsler-Bellevue Intelligence Scales. Emphasizes educational approach to interpretation.

*Three semester hours.*

Miss Moosey.

### 320b. SEMINAR IN THE SOCIOLOGY OF EDUCATION.

An in-depth consideration of a major issue in education informed by discussion and consideration of relevant literature.

*Three semester hours.*

Mr. Boardman.

### 331b. RESEARCH IN EDUCATIONAL SOCIOLOGY.

A consideration of the assumptions and techniques of applied social research in education. A review of traditional and current social scientific approaches will be included as well as an opportunity for development of independent research.

*Three semester hours.*

Mr. Boardman.

### 333a. EDUCATIONAL INSTITUTIONS AND SOCIAL CHANGE.

Provides an opportunity to develop and report on an independent inquiry into an aspect of the educational system and its relation to various models of social structure and change.

*Three semester hours.*

Mr. Boardman.

### 334b. EDUCATION AS A FORCE IN URBAN SOCIETY.

An opportunity to define and inform a group project evaluating aspects of the effectiveness of the modern educational system. Access to area practitioners and facilities will be provided.

*Three semester hours.*

Mr. Boardman.

### 335a.b. HUMAN LEARNING: THEORY AND PRACTICE.

Reviews current theories and relates them to individual and group instruction in the classroom with particular reference to problems of individual differences faced by the classroom teacher.

*Three semester hours each semester.*

Mr. Zern.

### 340a. and b. WORKSHOP: GRADUATE EDUCATION PROGRAM DEVELOPMENT.

Considers the aims and methods and content of higher learning as related to the development of educational analysts and social analysts; a staff-student involvement in program planning and evaluation at the graduate level.

*Three semester hours.*

Mr. Kvaraceus and Staff.

### 350a. and b. RESEARCH IN EDUCATION SEMINAR.

Individual direction of students in their research projects.

*Three semester hours each semester.*

Mr. Zern.

379a.b. ADVANCED GRADUATE INTERNSHIP IN EDUCATION.

*Three semester hours.*

Staff.

380b. DEPARTMENTAL SEMINAR ON CONTEMPORARY EDUCATIONAL PROBLEMS AND ISSUES.

*Three semester hours.*

Staff.

GRADUATE READINGS AND THESIS COURSES

38. DIRECTED READINGS IN EDUCATIONAL PSYCHOLOGY.

Staff.

381. THESIS.

37. DIRECTED READINGS IN EDUCATIONAL SOCIOLOGY.

Staff.

371. THESIS.

# English

## DEPARTMENT FACULTY

William H. Carter, Jr., Ph.D., *Professor of English, Department Chairman*

Karl O.E. Anderson, Ph.D., *Professor of English*

James F. Beard, Jr., Ph.D., *Professor of English\**

Charles S. Blinderman, Ph.D., *Professor of English*

James P. Elliott, Ph.D., *Assistant Professor of English*

James Macris, Ph.D., *Professor of English and Linguistics*

Stanley Sultan, Ph.D., *Professor of English*

Jessie C. Cunningham, Ph.D., *Associate Professor of English*

Serena S. Hilsinger, Ph.D., *Associate Professor of English*

Neil R. Schroeder, Ph.D., *Associate Professor of English*

Alvin Hugh McLean, Ph.D., *Assistant Professor of English*

\*On leave, 1971-72.

## UNDERGRADUATE PROGRAM

An undergraduate major in English and American Literature is expected to acquire a liberal education with a broad background in the arts and sciences. To do so, he should become familiar with several fields in the humanities, the social sciences, mathematics, and the sciences; and insofar as is possible, he should attempt to achieve depth in at least one area outside his major field. At each registration period, the student should discuss his program with his adviser.



The English major must take at least thirty hours in literature courses other than English 16, 17, 18, and 19. In addition, he must take a minimum of twelve hours of related courses in other fields, as specified under *Related Courses* below. No student is permitted to take *more* than eighty-four hours in his major and related fields.

*Literature Courses.* The minimum thirty hours of literature courses required of the major must include:

1. English 10a or b (a prerequisite for all other literature courses offered by the department), taken preferably in the freshman year and no later than the sophomore year.
2. Two of the following, normally taken before the senior year: English 13, English 14, English 15, English III.
3. A minimum of twelve hours in courses or seminars at the 200 level. (English 250, 260, 261 may be taken in partial fulfillment of this requirement.)

To make sure that students develop some historical perspective and an awareness of the range and variety of English and American literature, all English majors must include in their programs at least:

- a. Three semester-courses dealing with literature written before 1700 (for example, English 15a, 112b, 114b, 201b, 202b, 204, and 213).
- b. Three semester-courses dealing with literature written from 1700 to 1900 (for example, English 14, 15b, 111, 205, 210, and 217).

Several English seminars also meet this requirement, depending on the subjects. Since the topics for seminars vary from year to year, the seminars fulfilling either half of this requirement cannot be listed here by name. As an alternative to taking the required number of courses specified under a and b, above, the student may demonstrate his competence in these periods by examination.

*Courses in Foreign Literature.* A student may count any of the courses listed under "Comparative Literature" towards the English major.

*Related Courses.* The minimum twelve hours of related courses required of the English major must include six hours of History and six hours of Philosophy.

As long as the student fulfills the requirements specified above, he is entitled to elect any combination of courses ranging from fifty to eighty-four semester hours in his major and related fields.

*Courses Recommended Outside the Major and Related Fields.* Like all undergraduates, the English major must elect at least thirty-six hours of courses *outside* his major and its related fields. These courses must be selected from the offerings of the following Departments: Biology, Chemistry, Economics, Education, Fine Arts, Geography, Geology, German, Government and International Relations, Linguistics, Mathematics, Music, Physics, Psychology, Romance Languages, Russian, Sociology, Theatre Art.

Those students who intend to go on to graduate school should be aware that a reading knowledge of French, German, and Latin is frequently required of doctoral candidates.

*Honors Program.* Majors are encouraged to apply in the spring of their sophomore year to participate in the Honors Program in English. Further information is available from the Department.

*Cooperative Programs.* The range of course offerings open to majors has been extended by the establishment of a cooperative arrangement with the English Departments at Assumption College and the College of the Holy Cross. With the permission of the Department, majors may take a few carefully selected courses in literature and linguistics at these institutions. Another consortium program that may be of interest is listed under "Theatre Art."

## GRADUATE PROGRAM

The University offers a program leading to the Master of Arts degree in English. A limited number of scholarships providing tuition remission are available for superior students. The department also offers several teaching assistantships, involving half-time teaching and half-time study, with a stipend up to \$2600, plus the remission of tuition.

For the Master of Arts, the student must satisfactorily complete at least 30 semester hours of work, including English 300a (Introduction to Graduate Studies), English 250a (English Language), and at least one seminar. He must also write an acceptable master's thesis (which, with an associated reading course, English 31, may count up to 6 of the required 30 semester hours); he must pass a written Foreign Language Examination (in Greek, Latin, French, German, Italian, Russian, Spanish, or another foreign language approved by the Department); and he must pass a final oral examination.

## COURSES

### 10a, b. INTRODUCTION TO LITERATURE.

This course deals with the problems common to all the literary genres — such as the handling of diction, imagery, point of view, tone, and structure — but each section has its own set of readings focused on a particular concept or theme. Students will be permitted to make their own choices of section as far as possible. Offered both semesters.

*Three semester hours.*

Staff.

### 13a,b. INTRODUCTION TO POETRY.

A course designed to combine consideration of the nature and range of English poetry with extensive experience in the study and discussion of individual poems. Offered both semesters.

*Four semester hours.*

Mr. Carter, Mrs. Hilsinger, Mr. Sultan.

### 14. ENGLISH NOVEL.

A study of the English novel from its beginning to the end of the nineteenth century. The first semester includes Defoe, Richardson, Fielding, Smollett, Sterne, Jane Austen, and three or four minor novelists. The second semester considers Scott, Thackeray, Dickens, George Eliot, James, Hardy, Conrad, and two or three minor novelists. Some emphasis is placed on the development of the novel as a literary form.

*Four semester hours each semester.*

Mrs. Cunningham.

### 15. ENGLISH DRAMA.

A course in the major periods of English drama before the twentieth century. The first semester covers medieval religious drama and the drama of Tudor and Stuart England. The second semester covers British drama from 1660 to the earlier twentieth century.

*Four semester hours each semester.*

First semester, Mr. Schroeder; Second semester, Mr. Sultan.

## 16a. CREATIVE WRITING.

A course designed to cultivate and guide student work particularly in the short story. Class meetings deal largely with important aspects of the art of fiction; published literary works and student manuscripts are discussed. Not open to freshmen. Prerequisite: a one-semester course in literature.

*Three semester hours.*

Mrs. Hilsinger.

## 17b. CREATIVE WRITING: SECOND COURSE.

Open to students who have taken English 16 and to other students interested in writing verse. Prerequisite: the same as for English 16.

*Three semester hours.*

Mr. Sultan.

## F18a,b. EXPOSITORY WRITING.

This course is designed to help students improve their expository writing through the study and application of rhetorical methods. Diction, sentence structure, paragraph integrity, theme organization, logic, semantics, persuasion, the relationship of idea to expression and of expression to audience are among the matters analyzed. Offered both semesters.

*Three semester hours.*

Staff.

## 19b. INTERMEDIATE COMPOSITION.

This course is designed to help those who have already acquired competence in expository writing to improve their style and effectiveness through practical experience. Special emphasis will be placed on stylistics, techniques of persuasion, and methods of organization through the study of works of established essayists and the close analysis of student papers. Enrollment limited to fifteen students. Prerequisite: English 18 and consent of the instructor.

*Three semester hours.*

Mr. Blinderman.

## 88. DIRECTED READINGS.

*Variable credit.*

Staff

## 110b. THE TRADITION OF AMERICAN DRAMA.

Not offered, 1971-72.

Selected works from eighteenth and nineteenth-century drama with concentration on the development of twentieth-century American drama.

*Four semester hours.*

## 111. AMERICAN LITERATURE.

Through study of representative masterworks, the course traces the main currents of American literature from Puritan times to the present. Authors read during the first semester include Sewall, Edwards, Franklin, Cooper, Poe, Hawthorne, Thoreau, Emerson, Melville and Whitman; during the second semester, Twain, Howells, Dickinson, Adams, Crane, James, Frost, Eliot, Faulkner and Hemingway.

*Four semester hours each semester.*

Mr. Elliott.

## 112b. ELIZABETHAN NON-DRAMATIC LITERATURE.

Not offered, 1971-72.

Elizabethan prose and poetry, excluding drama, will be considered in their cultural, intellectual, and literary context. Special attention will be devoted to the works of Sidney, Spenser, Shakespeare, Jonson and Donne; but many minor figures (Wyatt, Surrey, Nashe, Lyly, Greene, etc.) will also be considered. Offered at the discretion of the department.

*Four semester hours.*

**114b. THE LITERATURE OF ELIZABETHAN STREETS.**

Not offered, 1971-72.

A study of popular entertainment in Elizabethan England, including such forms as popular drama, Elizabethan fiction and romance, literature of roguery and crime, descriptions of social conditions, broadside ballads, and hack verse on topical events.

*Four semester hours.*

Mr. Schroeder.

**120b. LITERATURE AND LIBERATION.**

This course will study the way literature reflects and determines the position of women in societies from ancient Greece to modern suburbia.

*Four semester hours.*

Mr. Blinderman.

**129. MODERN DRAMA.**

A survey, with special emphasis on several major figures, of drama from Ibsen to the present. The first semester traces the development of naturalism, the emergence of modern realistic drama and early reactions to realism. The second semester covers the period from World War II to the present and examines several of the major post-war movements and some of the non-dramatic forms which they have produced.

*Four semester hours each semester.*

Mr. Schroeder.

**140b. AFRO-AMERICAN LITERATURE.**

A study of selected Afro-American writers in prose and poetry. This course proposes to introduce the student to the vast body of writing by American Black authors, focusing on the evolution of their expression and its artistic merit.

*Four semester hours.*

Mr. McLean.

**141a. LITERATURE OF THE BLACK REVOLUTION.**

The course is problem-oriented. It will attempt to trace the evolution of the Militant Black Movement through the works of significant Black writers, analyze the political, social, literary merits of these exponents of Black Power, and define "the Black Revolution" from the ideological stances of the writers.

*Four semester hours.*

Mr. McLean.

**143b. MODERN BRITISH FICTION.**

The course deals primarily with the work of four twentieth-century British writers of fiction: Joyce, Lawrence, Woolf and Durrell.

*Four semester hours.*

Mrs. Hilsinger.

**144a. CONTEMPORARY AMERICAN FICTION.**

A critical introduction to the best American fiction since about 1900, with emphasis on its aesthetic values, sociological insights, and philosophical implications. Authors read include Dreiser, James, Anderson, Fitzgerald, Hemingway, Wolfe, Faulkner and Mailer.

*Four semester hours.*

To be announced.

**150a. LITERATURE OF WESTERN CIVILIZATION.**

Not offered, 1971-72.

A study of literature basic to the cultural development of western civilization; selections range in subject from mythology to political science, in type from the epic poem to the essay, and in time from Greek antiquity to the Renaissance.

*Four semester hours.*

Mr. Blinderman.



## 155b. SEMINAR: THE MYTHOPOETIC MODE.

This seminar explores the vision and epistemology of mythopoetic literature. Works read and discussed include Shakespeare's *Henriad*, Milton's *Paradise Lost*, Brontë's *Wuthering Heights*, Melville's *Moby Dick*, and Eliot's *Four Quartets*. Candidates for honors in English should elect this seminar in their junior year.

*Four semester hours.*

Mrs. Hilsinger.

## 156. HONORS IN ENGLISH: SENIOR YEAR.

*Four semester hours each semester.*

Staff.

## 200b. SEMINAR: OLD NORSE SAGAS.

A study of the major works written during the great flowering of literature in medieval Iceland, with particular emphasis on the Old Norse sagas. All works will be read in translation, but interested students will be given an opportunity to learn Old Norse.

*Four semester hours.*

Mr. Anderson.

## 201b. SEMINAR: CHAUCER.

An introduction to Middle English grammar, pronunciation, and scansion, and a study of *Troilus and Criseide* and the best of the *Canterbury Tales*, followed by a more rapid reading of at least three of Chaucer's earlier works, such as *The Book of the Duchess*, *The House of Fame*, *The Parliament of Fowls*, and *The Legend of Good Women*. Prerequisite: Consent of the instructor.

*Four semester hours.*

Mr. Anderson.

## 202b. MEDIEVAL LITERATURE.

A study of the literature of Western Europe before 1500. The works read include epics such as *Beowulf*, *The Song of Roland*, *The Nibelungenlied*, and the *Njal's Saga*; historical writings and folk tales important in the development of the Arthur story; romances such as *Perceval*, *Tristan and Isolde*, and *Gawain and the Green Knight*; Dante's *Divine Comedy*; *Inferno*; selections from Chaucer's *Canterbury Tales*.

*Four semester hours.*

Mr. Anderson.

## 204a. SEMINAR: SEVENTEENTH CENTURY.

A study of selected Metaphysical and Cavalier poets, masterpieces of seventeenth century prose, and the rise of English neo-classicism. Offered in alternate years. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Carter.

## 204b. SEMINAR: MILTON.

An intensive reading of Milton's poems and selected prose. Offered in alternate years.. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Carter.

## 205. EIGHTEENTH CENTURY.

Not offered, 1971-72.

During the first semester, prose works such as Defoe's *Moll Flanders* and Swift's *Gulliver's Travels*, plays such as Gay's *Beggar's Opera* and Lillo's *London Merchant*, and the major poems of Pope and Swift are considered. During the second semester, prose works by Boswell and Johnson; novels by Richardson, Fielding, Smollet, Sterne; plays by Fielding, Goldsmith, Sheridan; and poetry by Thomson, Collins, Gray, Burns and Blake are studied. Offered in alternate years.

*Four semester hours each semester.*

Mr. Carter.

**206b. SEMINAR: SPECIAL STUDIES IN RENAISSANCE DRAMA.**

A seminar devoted to the intensive study of a small group of dramatists or a special dramatic problem of the Renaissance. Prerequisite: consent of the instructor. Offered at the discretion of the Department. Topic for 1971-72: Marlowe and Jacobean Tragedy.

*Four semester hours.*

Mr. Schroeder.

**207b. SEMINAR: THE CONCEPT OF TRAGEDY.**

Not offered, 1971-72.

Through the study of approximately twenty plays, three novels, and a number of poems, from the Greek and Hebrew origins of Western Culture to the present time, this course analyzes the nature of tragedy, the changes which this concept has undergone, the relation of these changes to shifting views of man and the universe, and the significance of the study of tragedy to us today. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Anderson.

**210. VICTORIAN LITERATURE.**

Not offered, 1971-72.

A study of Victorian values and major intellectual movements as expressed in literature. The first semester concentrates on the Idea of Duty (transcendental, utilitarian, Catholic, Darwinian, and Dickensian); the second on the Idea of Decadence (from the Pre-Raphaelites to Beardsley). Offered in alternate years.

*Four semester hours each semester.*

Mr. Blinderman.

**211a. ADAMS, HOWELLS, AND JAMES.**

Not offered, 1971-72.

The artist and American society. The course will concentrate on selected works of Adams, Howells, and James with some attention to works of Jewett, Chopin, Frederic, and Garland. Prerequisite: consent of the instructor.

*Four semester hours.*

**212a. SEMINAR: AMERICAN LITERARY RENAISSANCE.**

This course will explore characteristic writings of Emerson, Thoreau, Hawthorne, Melville, and Whitman; consider their personal and literary interrelations; and seek to evaluate their artistic and cultural influences in the larger context of American society. Prerequisite: consent of the instructor.

*Four semester hours.*

To be announced.

**213. SHAKESPEARE.**

Approximately twenty plays, with supplementary critical essays, are read through the year as a basis for a study of Shakespeare's development as a dramatist and his changing attitude toward life. The second semester is devoted mainly to a careful analysis of *Hamlet*, *Othello*, *Lear*, *Macbeth* and *Anthony and Cleopatra*.

*Four semester hours each semester.*

Mr. Anderson.

**214a. SEMINAR: DARWINISM.**

Not offered, 1971-72.

This seminar, of an interdisciplinary nature, is devoted to the study of original and research materials elucidating the scientific, philosophical, religious and social dimensions of Darwinism. The course examines chiefly the survival of the fittest Darwinian ideas in English and American literature. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Blinderman.

215b. SEMINAR: ELLISON, WRIGHT, BALDWIN.

The course will consider closely the distinctive qualities of their craft in the portrayal of "the American dilemma"; their subscription to "the literature of necessity" and their contribution to the traditions of literature; the unity or disunity of their social vision; the significance of each in twentieth century literature, given the above delineations. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. McLean.

216a. SEMINAR: ROMANTIC AND VICTORIAN GOTHIC.

The seminar will call forth the Gothic spirit from its incarnations in architecture, painting, and literature — graveyard poetry, Gothic novels, *Frankenstein*. Films and a field trip.

*Four semester hours.*

Mr. Blinderman.

217. LITERATURE OF THE ROMANTIC PERIOD.

To define Romanticism, the course will focus primarily on selected writings of English Romantic poets, but it will also study American and Continental works both of the Romantic period and of modern times. A collaborative effort will be made by instructor and students to correlate Romantic attitudes of the past, as expressed by such figures as Keats and Byron, with Romantic attitudes of the psychedellic present. Offered in alternate years. Only the first half of this course will be offered in 1971-72.

*Four semester hours each semester.*

Mr. Blinderman.

218b. SEMINAR: WILLIAM BLAKE.

Not offered, 1971-72.

An analysis of the poems and of a selection of the Prophetic Books of Blake, including some consideration of Blake as graphic artist. Offered at the discretion of the department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Carter.

219b. SEMINAR: DICKENS.

This seminar will consider Dickens as a humorist, an artist, and a social critic in the light of his time and its relevance to ours.

*Four semester hours.*

Mrs. Cunningham.

220a. MODERNIST POETRY.

Not offered, 1971-72.

A survey, with special attention to the genesis and development of modernism and to tendencies during the last few years toward a dominant new movement in English poetry. The works of almost fifty poets, ranging in time from Emily Dickinson to Robert Creeley, are considered. Offered in alternate years.

*Four semester hours.*

Mr. Sultan.

222a. SEMINAR: FIVE TWENTIETH-CENTURY POETS.

A seminar in the lyric poetry of Yeats, Eliot, Auden, Thomas, and a poet selected by the class, for students who have taken English 220a or the equivalent. Offered in alternate years. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Sultan.

225b. SEMINAR: TWENTIETH-CENTURY AMERICAN LITERATURE.

The course will include readings and discussions of a significant group of twentieth-century American writers — O'Neill, Eliot, Robinson, Frost, Hemingway, Faulkner, and Stevens — as artists and as

representatives of tendencies and influences in American civilization. Prerequisite: consent of the instructor.

*Four semester hours.*

To be announced.

## 226b. SEMINAR: REALISM AND NATURALISM IN AMERICAN FICTION.

A study of realism and naturalism in representative American fiction from about 1865 to about 1965, with attention to their esthetic, social, and philosophic implications. Writers considered include Twain, Howells, Frederic, James, Norris, Dreiser, Farrell, Steinbeck, and Mailer. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Elliott.

## 227b. SEMINAR: IBSEN.

Not offered, 1971-72.

An intensive study of most of the plays and selected letters and speeches of Ibsen and of criticism of his life and work. Independent study and research is emphasized. Prerequisite: consent of instructor.

*Four semester hours.*

Mr. Schroeder.

## 230a. SEMINAR: THE BRONTËS AND HARDY.

A study of selected poetry and fiction of Charlotte, Emily and Anne Brontë and of Thomas Hardy: their dramatic affinities, their cosmic vision, their literary techniques. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mrs. Cunningham.

## 231b. SEMINAR: THE IRISH LITERARY REVIVAL.

A course in the inception, development and effect of the literary movement during the end of the last century and first decades of this one that created an Irish literature in English. Writers studied include Yeats, Joyce, Synge and O'Casey. The cultural, historical and political backgrounds of Anglo-Irish literature are also studied. Offered at the discretion of the department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Sultan.

## 232b. SEMINAR: CONRAD, LAWRENCE AND JOYCE.

Not offered, 1971-72.

This course deals with the development and accomplishment in the genres of the short story and the novel of three major writers of fiction of the twentieth century. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Sultan.

## 235a. SEMINAR: BLOOMSBURY GROUP.

This seminar will consider the aesthetic and social theories expressed in the novels of Virginia Woolf and E.M. Forster and in the essays of these and other members of the Bloomsbury Circle. Prerequisite: consent of the instructor.

*Four semester hours.*

Mrs. Hilsinger.

## 245b. SEMINAR: MODERN CONTINENTAL FICTION.

Not offered, 1971-72.

Masterpieces by modern European novelists (Flaubert, Turgenev, Tolstoy, Dostoyevsky, Gide, Proust, Mann, Kafka and Camus) are studied in translation, with special attention to their formal philosophical, moral, social, political, and psychological values. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Beard.



**250. HISTORY OF THE ENGLISH LANGUAGE.**

The first semester deals with the development of the phonology and lexicon of English, viewed as a dynamic series of systems. The course also describes the homeland, language, and culture of the Proto-Indo-Europeans as background for a treatment of the structural relationships between English and other languages of the Indo-European family. The second semester concentrates on the development of the grammar of English, also treated dynamically and systemically. The course includes an analysis of the establishment of Standard British English, the doctrine of correctness, and the growth of Modern American English in its sociocultural setting. Prerequisite: consent of the instructor. Only the first half of this course will be offered in 1971-72.

*Four semester hours each semester.*

Mr. Macris.

**255b. SEMINAR: OLD ENGLISH.**

An introduction to Old English language and literature. The works read include King Alfred's preface to Pope Gregory's *Pastoral Care* and selections from the West Saxon Gospels, from the Old English translation of the Heptateuch, from Aelfric's *Colloquy*, from the Anglo-Saxon Chronicle, and from the Old English translation of Bede's *Historia Ecclesiastica Gentis Anglorum*.

*Four semester hours.*

Mr. Macris.

**260b. SEMINAR: MODERN AMERICAN ENGLISH.**

Not offered, 1971-72.

This seminar analyzes the grammatical structure of Modern American English. It concentrates on an evaluational system for handling spoken and written English and the application of this system to problems of current English usage. The relevance of linguistic theory and methodology to the teaching of English receives special attention. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Macris.

**261b. SEMINAR: LINGUISTIC APPROACHES TO LITERATURE.**

A study of what modern linguistics has to offer in the analysis and criticism of literature, with special attention to the contributions of the generative-transformational, tagmemic, and parametric approaches. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Macris.

**300a. INTRODUCTION TO GRADUATE STUDIES.**

This course is devoted to an intensive general study of the three principal areas in the discipline — bibliography and textual analysis, literary history, and literary criticism — and to the relationships among them. In the study of literary criticism, alternative theoretical approaches and applications of them are examined.

*Four semester hours.*

Mr. Sultan.

**301b. SEMINAR: CHAUCER.**

Not offered, 1971-72.

A detailed study of selected problems of interpretation and evaluation, with wide reading in critical material and general background. Independent and original study is emphasized. Prerequisites: English 201b and consent of the instructor.

*Four semester hours.*

Mr. Anderson.

**315a. SEMINAR: SPECIAL STUDIES IN SHAKESPEARE.**

Not offered, 1971-72.

A detailed study of selected problems of interpretation and evaluation, with wide reading in critical material and general background. Independent and original study is emphasized. Prerequisite: English 213 and consent of the instructor.

*Four semester hours.*

Mr. Anderson.

# Fine Arts

## DEPARTMENT FACULTY

Samuel P. Cowardin, III, Ph.D., *Associate Professor of Fine Arts, Department Chairman*

Sante Graziani, M.F.A., *Associate Professor (affiliate) of Fine Arts*

Peter M. Barnett, M.A., *Instructor*

John T. Murphey, B.S., in Ed., *Assistant Professor of Fine Arts*

## UNDERGRADUATE PROGRAM

The department offers a selection of courses designed to foster understanding and sensitivity in the visual arts through direct contact with the materials of art or the study of artistic achievement in a variety of areas and historical periods.

The major in fine arts is offered in conjunction with the School of the Worcester Art Museum. All advanced studio courses at the museum are designated below as Fine Arts 199 and are described in the catalog of the School of the Worcester Art Museum. These courses are ordinarily open only to students majoring in fine arts.

The major comprises at least 36 hours of studio work at the museum, plus Fine Arts 11 and six additional hours chosen from one or more of the following areas or courses: European civilization (Classical, French, German), music; History 10, Philosophy 16a (Esthetics), Psychology 11. To meet the requirements for the bachelor's degree, all majors must satisfactorily complete 36 hours outside the following areas or courses: art history and studio art, European civilization, literature (English and foreign), music; History 10, Philosophy 16a, Psychology 11. No more than 60 hours in studio courses may normally be counted, and at least 30 hours must be taken in courses at Clark University. Clark fine arts majors are expected to observe the attendance regulations and, so far as possible, the calendar of the School of the Worcester Art Museum.

*At the time of application for admission to Clark, every candidate who plans to major in fine arts should submit about a dozen color slides of representative work in as wide a range of media as possible. Slides should be mailed direct to The Clerk of the School of the Worcester Art Museum, 55 Salisbury Street, Worcester, Massachusetts 01608. The deadline for slides is February 1. A similar selection of slides should also be submitted by any undergraduate desiring to enter the program at a later date.*

## COURSES

### 11. INTRODUCTION TO WESTERN ART.

Lectures during the first four weeks deal with general topics such as design principles and technical procedures. The remainder of the course treats significant works of architecture, sculpture, and painting in the light of their times. First semester prerequisite to the second.

*Three semester hours each semester.*

Mr. Cowardin, Mr. Barnett.

### 12b. SURVEY OF WESTERN PAINTING.

Not offered, 1971-72.

General problems of pictorial expression are treated as well as the historical aspects of style. May not be counted in addition to the second semester of Fine Arts 11. Primarily for freshmen and sophomores.

*Three semester hours.*

Mr. Cowardin.

## 114 FINE ARTS

### 14a. INTRODUCTION TO THE VISUAL ARTS.

Not offered, 1971-72.

Each of the visual arts is treated in a non-historical way, with special regard for the physical nature of the medium and its expressive potential. May not be counted in addition to the first semester of Fine Arts 11. Primarily for freshmen and sophomores.

*Three semester hours.*

Mr. Cowardin.

### 15. ART OF THE RENAISSANCE IN ITALY.

Not offered, 1971-72.

Prerequisite: Fine arts 11 or 12b, or permission of the instructor. Offered in alternate years.

*Three semester hours each semester.*

Mr. Cowardin.

### 16a. BAROQUE PAINTING: 17th CENTURY.

The course will deal with the principal masters of European painting in the Seventeenth century. It will emphasize close visual analysis of particular works, in order to isolate the expressive intention of each artist, as reflected in devices and techniques he employs. There will be a secondary emphasis on the social circumstances which underlie the broad range of national styles.

*Three semester hours.*

Mr. Barnett.

### 16b. ROCOCO AND ROMANTIC PAINTING: 18th & 19th CENTURY.

The course is a continuation of the above, but the emphasis will be reversed. There will be a primary preoccupation with relationships between the art of the period and the social circumstances which produced it. There will be an attempt to relate events in painting both to political and social events and to parallel currents in the arts in general. Discussion will cover the broad social and philosophical questions raised by the painting examined. 3 credit hours.

*Three semester hours.*

Mr. Barnett.

### 18. MODERN ART AND THE NEW ART.

The rise and fall of Modern Art and the birth of the New Art. Two semesters covering the period from Impressionism to the present. Special emphasis on the origins of modern aesthetic attitudes and on the evolution of cultural style.

*Three semester hours each semester.*

Mr. Murphey.

### 19a. INTRODUCTION TO ORIENTAL ART: THE ANCIENT NEAR EAST AND INDIA.

Prerequisite: at least one semester course in art history. Offered in alternate years.

*Three semester hours.*

Mr. Cowardin.

### 19b. INTRODUCTION TO ORIENTAL ART: CHINA AND JAPAN.

Prerequisite: at least one semester course in art history. Offered in alternate years.

*Three semester hours.*

Mr. Cowardin.

### 100. ART WORKSHOP.

A studio course on campus. Designed specifically for the non-major, it takes the student through all basic media from drawing to multi-media and through all basic approaches from hard-core realism to action painting, happening and conceptual art. Specific problems give insight to basic aesthetic questions such as intellect vs. emotion, plan vs. spontaneity, form vs. content. Six hours per week. Indivisible course.

*Four semester hours each semester.*

Mr. Murphey.

**110. BASIC DRAWING.**

Given at the School of the Worcester Art Museum. Open to freshmen who plan to major in fine arts.  
Indivisible course.

*Three semester hours each semester.*

Museum School Staff.

**111. BASIC PAINTING.**

Given at the School of the Worcester Art Museum. Open to freshmen who plan to major in fine arts.  
Indivisible course.

*Three semester hours each semester.*

Museum School Staff.

**112b. EYE-TRAINING: ART AS SENSUAL EXPERIENCE.**

A lecture-workshop course emphasizing the intense pleasures of the visual experience, as distinct from matters of content and association. The course engages systematically in each visual quality such as position, size, line, shape, color, etc. The student exercises his skill in creative, artistic *seeing* and uses simple media in daily practice assignments analyzing art and his environment. A flexible term project may involve any media or any sense. Previous art experience not necessary.

*Three semester hours.*

Mr. Murphey.

**120. ELEMENTS OF ARCHITECTURAL EXPRESSION.**

Offered in the Fall only.

This course will discuss architecture non-chronologically, discussing major architectural monuments only as they embody certain fundamental solutions to the major architectural problems of function and expression. Discussion will center around major topics, rather than periods. Required work will include problems in design as well as written work.

*Three semester hours.*

Mr. Barnett.

**121. MODERN ARCHITECTURE.**

Offered in the Spring only.

This course will cover the developments in architecture, both in Europe and in the United States, from the emergence of the modern movement in the late nineteenth century to the present. There will be an emphasis on detailed study of the work of the major masters of the early movement, and on developments in urban design. It will include a consideration of the role of architecture in the present world of population boom and technological revolution.

*Three semester hours.*

Mr. Barnett.

**151b. MICHELANGELO AND THE HIGH RENAISSANCE.**

This course will concentrate on Michelangelo's work in architecture, sculpture and painting, taking into account personal, religious, intellectual and political influences in his life. His style will be viewed in relation to the Renaissance background as well as the Mannerist trends of the sixteenth century. Readings, class discussions with slides, and a paper.

*Three semester hours.*

Mr. Cowardin.

**199. ADVANCED PAINTING AND DESIGN.**

General designation for all courses at the School of the Worcester Art Museum above the elementary level. Ordinarily open only to majors. Consult the department for semester hours.

Museum School Staff.



# Geography

## FACULTY

Saul B. Cohen, Ph.D., *Professor of Geography\**

*Director of the Graduate School of Geography*

Leonard Berry, M.Sc., *Professor of Geography*

James M. Blaut, Ph.D., *Professor of Geography*

Gerald J. Karaska, Ph.D., *Professor of Geography; Editor of Economic Geography*

Robert W. Kates, Ph.D., *Professor of Geography*

Duane S. Knos, Ph.D., *Professor of Geography*

Henry J. Warman, Ph.D., *Professor of Geography*

Martyn J. Bowden, Ph.D., *Associate Professor of Geography*

William A. Koelsch, Ph.D., *Associate Professor of History and Geography\*\**

Lawrence A. Lewis, Ph.D., *Associate Professor of Geography*

Roger E. Kasperson, Ph.D., *Associate Professor of Government and Geography*

Anne Buttimer, Sr. Mary Annette, O.P., Ph.D., *Assistant Professor of Geography*

George F. McCleary, Jr., Ph.D., *Assistant Professor of Geography*

J. Richard Peet, Ph.D., *Assistant Professor of Geography*

Richard A. Howard, Ph.D., *Assistant Professor of Biology and Geography*

## STAFF

Polly Carew, *Map Curator*

Norman Carpenter, *Research Associate in Cartography*

## PROFESSORS EMERITI IN RESIDENCE

Raymond E. Murphy, Ph.D., *Professor of Economic Geography, Emeritus*

Samuel Van Valkenberg, Ph.D., *Professor of Geography, Emeritus*

Each year the School of Geography has in residence or as off-campus affiliates a number of Research Affiliates and a Post Doctoral Fellow.

\*On leave of absence, 1971-72.

\*\*On leave of absence, Semester II, 1971-72.

When the Graduate School of Geography was organized in 1921, Clark became the second university in the United States to establish a separate graduate program in geography. At the present time, advanced training is provided leading to the Master's and Doctor's degrees. In addition, the school offers an undergraduate major, and a 7- and 5-year program, A.B.-Ph.D. and A.B.-A.M. degrees. Clark is a center for geographical training and research in the United States, and its various offerings provide a maximum of individual attention through student-teacher dialogue.

## UNDERGRADUATE PROGRAM

Majors in Geography are required to take five year courses in Geography, and at least three to four year courses in related fields. Related fields include all fields listed under Group B (Social Science) except philosophy and linguistics. Related fields also include geology and selected courses in psychology. A student must take 36 hours outside of the geography courses and related fields defined here to meet the requirements for the bachelor's degree.

Geography 11, A Survey of Geography, and Geography 111, Tools and Skills in Geography, are

required of majors. These are usually taken in the freshman or sophomore years. For those taking a dual, or interdisciplinary major, a total of three and one-half year courses are required in Geography, including Geography 11, Geography 111 and a junior year seminar in Geography and the dual or the interdisciplinary field.

An Honors Program in Geography offers opportunity for independent study and research. Information regarding the program can be obtained from the School.

#### THE GRADUATE SCHOOL OF GEOGRAPHY

*Admission:* Applicants without prior training in Geography are welcome, but depending on their concentrations, may be required to improve their knowledge of Elements of Geography, Economic Geography, Cartography, or Descriptive Statistics. Courses taken to remedy any deficiencies will not count as part of the regular program. The Graduate Record Examination scores (Verbal and Quantitative) are required of all students with the exception of those in foreign countries. The GRE Advanced Placement Test in Geography is desirable, but not required.

*Degree Objectives:* The graduate program in Geography at Clark has been derived from a synthesis of faculty-student discussions, documents and experiences. The Ph.D. training program stands as the central thrust in the Graduate School of Geography at Clark. In the context of the graduate training program, it is assumed that students may wish to pursue two tracks: One, the traditional Ph.D. with its training and experiential requirements in research and in teaching (assuming minimal steps for competence in the latter); the other, the Ph.D. with training related directly to the competence of individuals as college Geography teachers, the thrust being in a combination of work relating to the teaching and learning of Geography as a Social Science, and specialization in one major sub-field in Geography. The new T.T.T. program in geography (Training of Teachers of Teachers) is a focus for this track.

The School of Geography fosters student and faculty exchange with other institutions, including institutions outside the field of Geography and with Geography departments elsewhere. Clark has long encouraged ties with foreign Geography students and faculty. Focus, in recent years, has also included links with developing institutions in the U.S. through training of prospective faculty and facilitating programs.

*Specialized Programs in Sub-Fields:* The curriculum is organized to focus on specialized programs in sub-fields of Geography. Such sub-fields are developed around a series of sequentially-oriented courses which, in general, will occupy from one-third to no more than one-half of the student's formal doctoral program. The sub-fields will be organized in accordance with the interests, competencies and breadth of the staff. Programs in Environmental Management, Political Geography, Urban Geography, Geomorphology, Psycho-geography, Historical Geography, Geography and its Teaching, are examples of concentrations. Minor field concentration is also required, permitting, as a side benefit, shifts in the major concentration or sub-field. Therefore, even those students who arrive with pre-conceived notions about the major concentration will have opportunities to switch to other fields. In general, sub-fields are organized around committees with four to five staff members. Responsibility for supervision of the student's course, dissertation and other training experiences is with the sub-field adviser.

In organizing the curriculum in this specialized structured manner, there is neither the intention nor the desire to exclude faculty and students who do not wish to operate within the framework of a formal sub-field. Students may wish to create their own personalized programs or fields of concentration outside of the formal sub-fields. The only limit to this lies in the general nature of the offerings and in the interests and competencies of staff. Where formal, specialized programs do not

exist, it becomes the responsibility of the major adviser to develop, together with the students, a program whose various prerequisites will follow the general form and intent of the Clark Graduate Geography program. Development and evaluation of specialized programs rests heavily on the activities of joint student-faculty committees. Passing off prerequisites (e.g., substantive course background, statistical methods, computer science, or cartography) is essentially the responsibility of the specialized concentration, as is the encouragement of cross-disciplinary training.

*Core Course:* An introductory, core course is required of all entering graduate students, and offered in the first semester of residence. The course is concerned with MODELS, EXPLANATION AND VALUES IN GEOGRAPHY, and emphasizes the various approaches to problem formulation in the field. A limited portion of the course permits students to become acquainted with the various members of the staff and their offerings. This Core Course carries three credits. Papers, exercises and reports are used as a basis for diagnosing and evaluating student performance.

*Formal Course Requirements:* Other than the Core Course and those courses considered prerequisite to the specialized or individually-tailored program, no formal course requirements are set. It is the full responsibility of a student's adviser to require that a student take courses in areas of deficiency. Such courses might be required on a formal basis, on an audit basis, or through organized readings.

*Residence Requirement:* A three-year residence beyond the A.B. degree is required for Ph.D. program. One of the years in residence must be the year in which the dissertation proposal is submitted and approved, and, as part of the three-year residence the student must remain in residence for one semester (or one summer under direct supervision) following approval of the outline to work on the dissertation. After approval of the dissertation proposal, if the dissertation is not completed by the end of four years, the proposal must be submitted for re-approval. One prerequisite for such reapproval is provision for one academic semester's residence during the next year to work on the dissertation. (Twelve weeks during the summer is considered the equivalent of an academic year semester for this purpose, with the proviso that a faculty member be in residence at Clark during the summer and express a willingness to supervise.) Upon completion of all formal requirements, save the completion of the dissertation, the student is expected to file for candidacy with the Graduate School, unless specific permission not to file is granted by the School of Geography. Students entering with an M.A. in a field other than Geography will be expected to take essentially the three year residence program. Students entering with an M.A. in Geography from another institution may expect to complete their residence in five semesters, or two and one-half years.

*Teaching or Research Prerequisite:* Some research or teaching experience at Clark (or its equivalent at another institution) is prerequisite to the Doctor's degree. Every effort is made to organize various forms of internships to provide on-and-off-campus training activities, at the research and teaching levels, generally at the end of the second year of residence.

#### *Doctor of Philosophy:*

##### *A. Language and/or Alternative Requirement:*

Options to examination in a traditional foreign language are available. These include (1) computer science, (2) statistical methods, and (3) cartography; in addition, other options can be required or made available by individual concentrations, with the approval of the faculty. The requirement varies with the concentration.

##### *B. Field Camp*

Field Camp is not a general requirement, but is offered and may be designated as a requirement by



specific concentrations.

### *C. History and Philosophy of Geography*

The history and philosophy of Geography is required as part of the Ph.D. examination, in the form of a written qualifying essay related to the major sub-field of concentration, demonstrating a knowledge of the intellectual history of the concentration and of its relations to the remainder of the discipline.

### *D. The Ph.D. Examination*

All Ph.D. candidates must prepare themselves for examination in three fields. The major field examination consists of a 90 minute oral examination. The student may opt for either a 45 minute oral or a 3 hour written examination in each of the two minor fields. Selection of fields should be made in consultation with the major adviser and the supervisory committee at least two months in advance of the examination dates, and is subject to departmental approval. In selecting the three fields, breadth in an interrelated set of sub-fields, depth in connection with the proposed dissertation topic, or competencies and availability of staff are considerations.

Under normal circumstances it is expected that the language requirement (or its alternatives) will have been successfully met prior to the student's taking the Ph.D. examination. Approval of the dissertation proposal may precede the Ph.D. examination. Doctoral examinations are not normally conducted between May 1 and September 15, and should be requested sixty days before the desired date.

### *E. Committee System for Ph.D. Dissertation*

The dissertation committee is composed of five faculty members, with responsibilities for: (a) approval of the outline; (b) reading and reviewing of the dissertation (two readers and three reviewers); and (c) participating in the dissertation defense. Before the proposal is presented to the dissertation committee for approval, it is presented formally at a specially convened, open, student-faculty meeting, which will serve as a review/discussion session.

When the draft of the dissertation has been approved by the committee, it is made available in three copies to the faculty as a whole. If the defense is adequate, then the dissertation in final form is delivered, with two copies to the departmental office and the ribbon copy to the Registrar.

*Master of Arts:* While the thrust of the Clark Geography Program is at the doctoral level, two types of M.A. degrees will be made available:

#### *A. The Pre-Doctoral M.A.*

Students working toward the Ph.D. will be granted, upon request, an M.A. degree at the end of the required residence period, having completed: (a) the dissertation proposal; (b) required coursework; (c) the Ph.D. preliminary examination; and (d) a formal research paper approved by the concentration adviser.

#### *B. The Non-Doctoral M.A.*

Normally no later than at the end of the first semester of the second year of residence, after a review process that includes a proficiency paper in the concentration at the end of the first year, students may opt or may be advised to shift to a terminal M.A. degree, under which circumstances they will be expected to drop one or two courses in order to write a thesis. This thesis is envisaged as a research paper or short article (15-30 pages), demonstrating an ability to define a problem as well as serving as evidence of research competence. The thesis would be presented in such a manner as to meet the form and standards of a professionally acceptable article, and will be defended as the Master's Oral



Examination. The thesis committee consists of the major adviser and two reviewers. After approved by committee, three copies of the final draft are circulated to the faculty as a whole. Following defense of the thesis, two final copies are delivered to the departmental office and the ribbon copy to the registrar. Thesis defense should be conducted by May 1st to meet June commencement.

C. Starting in 1971-72, formal 7- and 5-year programs for Clark undergraduate students will be offered, leading to the Ph.D. and A.M. degrees in geography. At the undergraduate level, applicants must major in Geography and a dual or interdisciplinary field, and make application at the end of the first semester of the junior year. The A.B.-Ph.D. program includes one (the sixth) year off-campus, in residence at another university or agency. Admissions are limited to a very small number of highly qualified students and in subfields of concentration that are appropriate to Clark's range of offerings. For specific information, contact the Director of the School of Geography.

#### DISTINCTIVE FEATURES AND SPECIALIZATION

The School of Geography is housed in completely new quarters, opened for the fall of 1970. Graduate students are assigned carrels in the Geography Workroom. The Workroom and other sections of the Geography Building contain specialized equipment and research facilities for the use of students and staff. The Libbey Library of the Geography Workroom serves as the student lounge, and the John K. Wright Mezzanine serves as the Reading Room. Workroom fees totaling \$10 per semester are payable on November 1 and March 1.

Cross-disciplinary training, as evidenced by the three joint appointments held by geography faculty with other departments; the clustering of faculty research and teaching interests in several areas having to do with the man-environment system; and specialization in urban-economic, environmental management, environmental behavioral, political, historical, cultural geography and geomorphology currently characterize the school.

#### PUBLICATIONS

A professional magazine, *Economic Geography*, is edited by a faculty member. Started at Clark University in 1925, it is the only journal published in English that specializes in economic and urban geography. The magazine has a world-wide distribution with a total circulation of about 5,000.

The graduate students, through the years, have maintained the Clark University Geographical Society. The annual publication, *The Monadnock*, keeps School of Geography alumni in touch with each other and with news and scholarly activities in the School.

#### COURSES

##### 11. SURVEY OF GEOGRAPHY.

A general framework for understanding geography, with emphasis on the interrelation of process through various approaches to geographic research. Urban, physical, economic, political, cultural and regional segments will be synthesized by various faculty. For freshmen and sophomores; juniors and seniors admitted with consent of instructor.

*Four semester hours.*

Mr. Bowden, Coordinator, and Messrs.  
Knos, Berry, Peet, Kasperson and Miss Buttimer.

##### 14b. INTRODUCTION TO PHYSICAL GEOGRAPHY.

Physical geography, with emphasis on the principles of geomorphology and climatology. Open to freshmen and sophomores; under special circumstances, juniors and seniors admitted with consent of instructor.

*Four semester hours.*

Mr. Berry or Mr. Lewis.

**19b. MAP APPRECIATION AND READING**

Offered Semester 1.

The philosophy and history of maps and mapping; types of maps and elements of maps. A general liberal arts approach to maps and cartography.

*Three semester hours.*

Mr. McCleary.

**111. SKILLS AND TOOLS IN GEOGRAPHY.**

A synthesis of statistics, cartography and computer science techniques that are relevant to geographical analysis. Prerequisite: Geography 11.

*Four semester hours each semester.*

Mr. Lewis, Coordinator, and  
Messrs. McCleary and Howard.

**114a. PRINCIPLES OF GEOMORPHOLOGY.**

The analysis and distribution of physical features in the geographic landscape, with emphasis on the processes affecting the landforms. Prerequisite: Geography 14b or Geology 11, or equivalent.

*Three semester hours.*

Mr. Berry.

**122b. ELEMENTS OF PHYSICAL CLIMATOLOGY.**

A survey of the elements of climate, atmospheric circulation and the exchange of heat and moisture between the earth and its atmosphere. Prerequisite: Geography 11b or consent of the instructor.

*Three semester hours.*

Mr. Warman.

**130b. THE GEOGRAPHY OF INTERNATIONAL POLITICS.**

Not offered in 1971-72.

Concentrates on the impress of politics upon landscape in unique regional settings. Problem-oriented, within the context of a world regional survey. Prerequisite: Geography 11 or Government 14.

*Three semester hours.*

**150a. CONFLICT AND COMPLEXITY: A COMPUTER APPROACH TO  
NATURAL RESOURCE PLANNING.**

A computer simulation of land and water resource planning. Students assume the roles of technical experts confronting complexity in natural resource ecology, conflicting planning objectives and social values, and an uncertain environment and technology.

*Four semester hours.*

Mr. Dworkin, Mr. Howard, Mr. Kasperson, and Mr. Kates.

**160a. INDUSTRIAL GEOGRAPHY.**

Introduction to location theory; the growth of central urban-industrial regions and the stagnation of underdeveloped peripheries; interregional industrial competition and the formation of pockets of unemployment within manufacturing belts.

*Three semester hours.*

Mr. Peet.

**161b. GEOGRAPHY OF AMERICAN POVERTY.**

The extent and location of poverty in the United States. Government anti-poverty policy and some alternative socialist strategies. Poverty regions of the rural periphery – Appalachia, the South, the Spanish Southwest. Migration of poor people. Ghetto formation in northern cities.

*Three semester hours.*

Mr. Peet.

**170b. INTRODUCTION TO CULTURAL GEOGRAPHY.**

Study of the effect of culture on the earth, and the varying uses of natural resources at different cultural levels. For freshmen and sophomores; juniors and seniors admitted by consent of instructor.

Prerequisite: Geography 11 or Introductory Anthropology.

*Three semester hours.*

Mr. Blaut.

## 122 GEOGRAPHY

### 171a. SOCIAL GEOGRAPHY

Emphasis is on the spatial expression of mankind's sociocultural differences. The specific values, traditions and aspirations underlying the life styles of particular social groups are seen to influence the ways in which the physical environment is perceived, used and organized, with illustrations from a wide variety of cultural settings.

*Three semester hours.*

Miss Buttimer.

### 188b. EAST AFRICA: PROBLEMS OF A DEVELOPING REGION.

Not offered, 1971-72.

An interdisciplinary approach designed to convey to the student a sense of East Africa place and people and a concern with their needs and problems as they pursue difficult and differing paths of development.

*Two semester hours.*

Mr. Kates.

### 200a,b. GEOGRAPHY IN EDUCATION.

Designed for students intending to teach geography as a separate subject or in the social studies; for supervisory personnel and for teachers in service. Subject-matter course treats various geographic factors and concepts separately but in their sequences and inter-relationships. References made to and work experience in techniques and methodology. Signature of instructor required.

*Four semester hours.*

Mr. Warman.

### 202. HONORS.

Independent study, reading and research. Open only to honors undergraduates.

*Four to six semester hours.*

Staff.

### 215b. FLUVIAL PROCESSES IN GEOMORPHOLOGY.

Application of analytical and experimental techniques to the study of running water and its effects on landforms. Prerequisite: Geography 114a.

Mr. Lewis.

### 216b. PLEISTOCENE GEOMORPHOLOGY.

*Four semester hours.*

Mr. Berry.

### 221b. REGIONAL CLIMATOLOGY.

Not offered, 1971-72.

World classification and description of climates. The various classifications of climate, especially as related to vegetation. Prerequisite: Geography 120a or consent of the instructor.

*Four semester hours.*

### 230a. POLITICAL GEOGRAPHY AND ITS SPATIAL CONSEQUENCES.

Not offered, 1971-72.

Theory and methodology in Political Geography. Political processes and landscape interaction, at varying levels of the political hierarchy (national, urban, international). Attention to such topics as equilibrium, systems, decision-making, political action space. Open to juniors and seniors. Prerequisite: Geography 11a or Government 14.

*Four semester hours.*

### 230b. BEHAVIORAL PERSPECTIVES IN POLITICAL GEOGRAPHY.

The interaction between space and process in political behavior and the functioning of the political system. Topics include integration and disintegration, diffusion, modernization, territorial behavior, conflict theory and locational decision-making, and the post-behavioral revolution. Prerequisite: Geography 230a or permission of the instructor.

*Four semester hours.*

Mr. Kasperson.

**241a. FOREST RESOURCE MANAGEMENT.**

Not offered, 1971-72.

The principles of forest management will be presented, with the Harvard Forest to be used as a field laboratory. Four full day field trips are scheduled on Saturdays. Prerequisite: Permission of instructor. Limited to ten students.

*Two semester hours.*

**245a. HISTORICAL GEOGRAPHY OF EASTERN U.S.A.**

Studies in settlement and resource utilization on the Eastern Seaboard before 1860.

*Four semester hours.*

Messrs. Koelsch & Peet.

**248b. MODEL BUILDING TECHNIQUES.**

*Four semester hours.*

Messrs. Howard and Karaska.

**252b. HISTORICAL GEOGRAPHY: METHODS, TECHNIQUES AND SOURCES.**

*Four semester hours.*

Mr. Bowden.

**261a. URBAN GEOGRAPHY.**

A systematic study of external and internal spatial relationships of cities and city systems. Urbanization viewed as a process in spatial organization involving mutual interrelations among decision units.

*Four semester hours.*

Mr. Karaska.

**265a. UNDERGRADUATE SEMINAR ON REGIONAL PLANNING.**

Principles of regional planning with special reference to low income areas in the United States. Prerequisite: Geography 161b and permission. Limited to ten students.

*Four semester hours.*

Mr. Peet.

**269b. ETHNO-GEOGRAPHY**

Study of the interdisciplinary field embracing parts of cultural geography and cultural anthropology. Emphasis is placed on problems of theory in culture history, primitive economics, and technological change.

*Four semester hours.*

Mr. Blaut.

**270b. URBAN SOCIAL GEOGRAPHY**

The nature and dynamics of urban social patterns is examined, including models of urban demographic/social structure that raise questions regarding the dynamics of social behavior in cities and how space assumes a variety of meanings for its residents. Regionalization of urban service functions/activities are related to the varying demands and aspirations of urban populations. Prerequisites: Geography 11 and Introduction to Sociology. Urban Geography also recommended.

*Three semester hours.*

Miss Buttimer.

**272a. RELATIONS OF CULTURE AND ENVIRONMENT.**

An historical approach to study of the interrelations of culture and nature; geochronology; culture change and migrations; agricultural origins and diffusion of plants and animals; culture and environmental perception. Emphasis on sources in the study of particular problems in cultural geography. Open to juniors and seniors. Geography 11 or equivalent required, or by permission of instructor.

*Four semester hours.*

Mr. Bowden.



## 124 GEOGRAPHY

### 273b. SETTLEMENT GEOGRAPHY.

An historical cultural approach to study of rural and urban settlement patterns; origin and development of field systems and settlement types in Europe and North America; models of settlement; the internal structure and external relations of urban and rural places. Open to juniors and seniors. Geography 11 or 272a or equivalent required, or by permission of instructor.

*Four semester hours.*

Mr. Bowden.

### 274b. AGRICULTURAL DEVELOPMENT IN UNDERDEVELOPED AREAS.

*Three semester hours.*

Mr. Blaut.

### 280a. PHILOSOPHY OF GEOGRAPHY.

*Four semester hours.*

Mr. Blaut.

### 282b. REGIONAL GEOGRAPHY OF THE UNITED STATES.

*Three semester hours.*

Mr. Warman.

### 283a. REGIONAL GEOGRAPHY OF LATIN AMERICA.

*Four semester hours.*

Mr. Warman.

### 285a. REGIONAL GEOGRAPHY OF EUROPE.

A general regional survey of Europe with emphasis on man-land relationships. No prerequisite.

*Four semester hours.*

Mr. Van Valkenberg.

### 290b. REMOTE SENSING SYSTEMS AND IMAGE INTERPRETATION. Not offered, 1971-72.

Examination of the means of acquisition, the interpretation, and the utilization of different forms of remote sensing imagery. Emphasis will be placed upon air photo interpretation; attention will also be given to use of non-conventional imagery (infrared, radar, microwave, multispectral), data sampling and processing. Limited to fifteen students. Permission required.

*Three semester hours.*

### 291b. SPACESHIP EARTH.

Form, celestial relations, and organization into maps. Briefly, this course covers:

1. Earth form: the evolution of man's ideas, from plane to sphere to spheroid to geoid.
2. Geodesy: measuring the geoid, relating it to the spheroid and the sphere.
3. Earth reference systems: origin, development and utility.
4. Map projections: organization of the spherical surface onto a plane.

*Four semester hours.*

Mr. McCleary.

### 292a. MAP DESIGN.

Theory and practice in the development of the design of maps. The map is examined as a medium of communication, as a perceived object, and as an information system. Prerequisite: Elements of Cartography

*Four semester hours.*

Mr. McCleary.

### 294b. CARTOGRAPHIC TECHNIQUES.

Not offered in 1971-72.

Methods of map preparation and reproduction including computerized mapping programs. Prerequisite: Geography 291a.

*Four semester hours.*

**295b. COMPUTER GRAPHICS**

*Three semester hours.*

Messrs. Howard and Carpenter.

**297b. MAP ANALYSIS AND USE.**

Methods and procedures for the analysis of areal distributions, particularly those expressed in cartographic form. Prerequisite: Geography 291a; a basic knowledge of statistical methods is required.

*Four semester hours.*

Mr. McCleary.

**310a. ENVIRONMENTAL PROCESSES MEASUREMENT AND ASSESSMENT.**

A study of basic environmental processes leading to an analysis of the measurement and assessment of environmental systems. Field studies concentrate on the problems of environmental assessment with alternative sites provided for developing and developed areas.

*Four semester hours.*

Mr. Lewis.

**330. SEMINAR IN RESEARCH AND TEACHING PARAMETERS IN  
POLITICAL GEOGRAPHY.**

Not offered in 1971-72.

First semester involves a research topic to be handled by one or more teams. Research will concentrate on theory formulation and testing. Second semester includes responsibility for supplementary undergraduate tutorial sessions in connection with the sessions to be organized around the background and interests of seminar participants.

*Three semester hours each semester.*

**347b. ADVANCED QUANTITATIVE METHODS IN GEOGRAPHY.**

Multivariate analysis including analysis of variance; miscellaneous spatial statistics (including nearest neighbor, graph and game theories, and other analyses).

*Three semester hours.*

Mr. Karaska.

**348a. ADVANCED MODELLING TECHNIQUES.**

*Four semester hours.*

Mr. Howard.

**350a. RESOURCE MANAGEMENT: THEORIES, METHODS AND MODELS.**

Economic, cultural, ecological and political decision theories of resource use. Methods of resource measurement and projection. Computer decision models of forest and water management and system design.

*Four semester hours.*

Mr. Kates, Coordinator, and Staff.

**351a. RESOURCE MANAGEMENT: PROBLEMS OF DEVELOPED AREAS.**

Selected managerial problems emphasizing problems of environmental quality and institutional choice and decision making.

*Four semester hours.*

Mr. Kates, Coordinator, and Staff.

**352b. RESOURCE MANAGEMENT: PROBLEMS OF DEVELOPING AREAS.**

Selected managerial problems emphasizing problems of resource assessment, agricultural development and water resource planning.

Mr. Berry, Coordinator, and Staff.

353b. ENVIRONMENTAL MANAGEMENT: GROUP RESEARCH SEMINAR.

Student-initiated cooperative research or action-oriented projects for solving applied managerial problems. Can take place at any time, but requires approved topic, at least three student participants, and minimal equivalent of three weeks full-time effort.

*Four semester hours.*

Staff and Students.

354a. SEMINAR IN ENVIRONMENTAL SYSTEMS.

Systems analysis and models related to environmental management. Programming experience required.

*Three semester hours.*

Mr. Howard.

355b. NATURAL HAZARDS RESEARCH SEMINAR.

A specialized research seminar on human adjustment to natural hazards. The environmental behavior of *homo in extremis* is examined for its theoretical implications for studies of uncertainty, crises and technological change and for its contribution towards reducing the social cost of hazard adjustment.

*Three semester hours.*

Mr. Kates.

356b. SEMINAR ON HISTORICAL GEOSOPHY.

An historical approach to the study of perception of regions, space and territory, landscape and physical environment with special emphasis on New England and the American West, 1700-1970. Emphasis will be on sources and techniques.

*Four semester hours.*

Mr. Bowden.

360a. THEORY OF ECONOMIC GEOGRAPHY.

Not offered in 1971-72.

Construction of theory in geography; agricultural and industrial location theories; interregional trade theory; behavioral variation on classical location theory.

362a. SEMINAR IN NETWORKS AND SETTLEMENT.

Not offered in 1971-72.

Critical appraisal of studies dealing with development of patterns of urban and rural centers; the dynamics of central place and other theories in areas of orthogenetic and heterogenetic transformation. Prerequisite Geography 273b or equivalent or by permission of instructor. Limited to ten students.

363b. SEMINAR IN GEOGRAPHY OF POVERTY.

Not offered in 1971-72.

The seminar will focus on underdeveloped America and methods of regional development planning.

*Three semester hours.*

Mr. Peet.

364b. TRANSPORTATION AND REGIONAL  
ECONOMIC DEVELOPMENT.

Not offered in 1971-72.

The historical role of transportation in the process of regional economic growth.

*Three semester hours.*

366b. SEMINAR IN URBAN GEOGRAPHY.

Not offered in 1971-72.

A review of the regional science literature leading to problems on models and techniques of metropolitan area analysis.

370b. SEMINAR IN URBAN SOCIAL SPACE.

This seminar deals primarily with conceptual and technical problems in operationalizing the notion of social space. It addresses itself primarily to the social space project currently underway, and would

be of interest primarily to those graduate students who have urban or environmental behavior concentrations.

*Four semester hours.*

Miss Buttimer.

**371b. SEMINAR IN SOCIAL GEOGRAPHY.**

*Four semester hours.*

Miss Buttimer.

**391b. SEMINAR IN CARTOGRAPHY.**

*Three semester hours.*

Not offered in 1971-72.

Mr. McCleary.

**398a. GRADUATE CORE COURSE**

Theory, Models and Approaches in Geography.

*Three semester hours.*

Mr. Karaska, Coordinator and Staff.

**399a. FIELD RESEARCH METHODS IN GEOGRAPHY AND FIELD CAMP.**

Theory and techniques of field (observational and survey) research; experimental design. Field camp in January to be held in the Caribbean; fee \$100.00.

*Three semester hours.*

Mr. Berry and Mr. Lewis.

**300a. SEMINAR IN POPULATION GEOGRAPHY.**

*Three semester hours.*

Mr. Warman.

**303. SOCIAL SCIENCE SEMINAR.**

Offered jointly with the History and Economics Department for the Geography and Its Teaching Program.

*Three semester hours.*

Mr. Knos et. al.

**304. SEMINAR IN GEOGRAPHY AND ITS TEACHING**

*Four semester hours.*

Mr. Knos.

**305. CURRICULUM DEVELOPMENT IN THE TEACHING OF SOCIAL STUDIES.**

*Three semester hours.*

Staff.

**309a. SEMINAR ON COGNITION AND TECHNOLOGY.**

*Four semester hours.*

Mr. Blaut.

**315b. SEMINAR IN GEOMORPHOLOGY.**

*Three semester hours.*

Mr. Lewis.

**READING, RESEARCH AND THESIS COURSES**

**300. READING COURSE.**

Prerequisite: consent of the Instructor.

**301. RESEARCH IN GEOGRAPHY.**

Prerequisite: consent of the instructor.

**302. THESIS AND DISSERTATION RESEARCH.**

Single of double course. Prerequisite: consent of the staff.



306. TEACHING AND RESEARCH INTERNSHIPS IN GEOGRAPHY.

Prerequisite: consent of the instructor.

**CLOSELY RELATED COURSES IN OTHER DEPARTMENTS**

|                                                                             |                |
|-----------------------------------------------------------------------------|----------------|
| Economics 265a. INTRODUCTION TO ECONOMETRICS.                               | Mr. Puffer.    |
| Economics 277. REGIONAL ECONOMICS.                                          | Mr. Moody.     |
| Economics 390. ECONOMETRICS                                                 | Mr. Puffer.    |
| Government 220a. URBAN GOVERNMENT AND POLITICS.                             | Mr. Kasperson. |
| Government 222b. URBAN PUBLIC POLICY ISSUES.                                | Mr. Kasperson. |
| Government 262b. MODERNIZATION AS POLITICAL THEORY.                         | Mr. Goodman.   |
| Government 269b. SEMINAR, EFFECTS OF URBAN GROWTH ON<br>POLITICAL BEHAVIOR. | Mr. Goodman    |
| History 246a. THE AMERICAN CITY.                                            | Miss Hareven   |

This catalog does not include reference to the offerings in Environmental Behavior and Psycho-Geography. Together with the staff of the Department of Psychology, members of the School of Geography offer courses, workshops and seminars and conduct research in this field. Specific staff announcements and offerings will be announced separately.

## German

**DEPARTMENT FACULTY**

Walter Schatzberg, Ph.D., *Associate Professor of German, Department Chairman*

Karl J.R. Arndt, Ph.D., *Professor of German*

James E. Edwards, A.M., *Associate Professor of German*

Hartmut Kaiser, Ph.D., *Assistant Professor of German*

**UNDERGRADUATE PROGRAM**

The Department of German intends primarily to give its students a liberal and humanistic education by presenting and interpreting the language, life, and literature of German-speaking peoples. Students interested in German as their major should consult the department chairman. The German major may provide pre-professional training for those students intending to enter secondary school teaching or who plan to continue with graduate work in Germanic studies. For those German majors who intend to enter other fields than German, programs coordinated with other departments can be individually arranged.

Majors in German are required to take six hours of German 154 or the equivalent and 15-24 hours of advanced German literature courses beyond German 14. The German major must also select a minimum of 20 hours in related fields including History 10 or 215, Philosophy, Art, Music, and language and literature courses in other departments. In addition, at least 36 semester hours of a major's program must be selected from courses other than those listed above and Group C-D courses.

# **FIRST YEAR COURSES**

## **10. READING KNOWLEDGE OF GERMAN.**

A course in grammar and reading that will provide the student with the ability to read scientific and scholarly literature of average difficulty. No previous knowledge of German required. Indivisible course.

*Three semester hours each semester.*

Staff.

## **11. INTRODUCTORY GERMAN.**

This course is designed to impart an active command of the German language. It combines the study of grammar with oral practice and readings in literary and expository prose. Indivisible course.

*Four semester hours each semester.*

Mr. Schatzberg.

# **SECOND YEAR COURSES**

## **12. INTERMEDIATE GERMAN.**

Review of German grammar. Reading and discussion of significant works in prose, poetry and the drama to acquaint students with outstanding writers, ideas and movements in German literature.

*Three semester hours each semester.*

Mr. Kaiser.

## **13. INTERMEDIATE GERMAN READING.**

An intermediate course designed for students who wish to improve and develop their reading knowledge of German through grammar review and readings in expository and literary German.

*Three semester hours each semester.*

Mr. Edwards.

## **14. INTRODUCTION TO GERMAN LITERATURE (Intermediate course). Not offered, 1971-72.**

Principally a reading course for students who wish to gain as rapidly as possible a general knowledge of German Literature at the intermediate level. Reading and interpretation of the works of representative German writers. Prerequisite: German 11 or two years of high school German and consent of instructor.

*Three semester hours each semester.*

Mr. Arndt.

# **ADVANCED COURSES**

## **130. MODERN GERMAN PROSE.**

Selected works by Mann, Hesse, Kafka, Dürrenmatt and Grass. Discussions, oral and written reports in German. Prerequisite: German 12.

*Three semester hours each semester.*

Mr. Schatzberg.

## **132. ADVANCED COMPOSITION AND LITERATURE.**

Intensive training in the aural, oral, and written use of the language. Required of majors. Prerequisite: oral and written examination.

*Three semester hours each semester.*

Mr. Kaiser.

## **134. GERMAN LITERATURE SINCE GOETHE.**

Not offered, 1971-72.

Reading and interpretation of representative works of German literature since Goethe. Prerequisite: German 12 or advanced placement.

*Three semester hours each semester.*

Mr. Edwards.

## **136a. GERMAN LYRIC POETRY.**

Not offered, 1971-72.

German lyric poetry from the Reformation to the present. Prerequisite: German 12.

*Three semester hours.*

Mr. Arndt.

138. MODERN GERMAN DRAMA.

Reading and interpretation of works of modern German drama, including plays of Wedekind, Kaiser, Brecht, Dürrenmatt, Frisch, and Weiss. Discussions, oral and written reports in German. Prerequisite: German 12.

*Three semester hours.*

Mr. Schatzberg.

140a. GERMAN ENLIGHTENMENT.

Not offered, 1971-72.

Selected readings from the works of Wolff, Gottsched, Brockes, Haller and Lessing. Several Storm and Stress authors will also be considered toward the end of the semester. Prerequisite: German 12.

*Three semester hours.*

Mr. Schatzberg.

142b. GERMAN ROMANTICISM.

A study of selected works by the Schlegel Brothers, Novalis, Tieck, Brentano, Chamisso, Fouque, E.T.A. Hoffmann, Eichendorff and Heine. Prerequisite: German 12.

*Three semester hours.*

Mr. Kaiser.

154. HISTORY OF GERMAN LITERATURE.

Survey of German literature from earliest times to the present. Given in German. Prerequisite: German 132 or consent of the instructor.

*Three semester hours each semester.*

Mr. Edwards.

162a. GOETHE'S FAUST.

Not offered, 1971-72.

Reading and discussion of Goethe's *Faust I and II*. Given in German. Prerequisite: German 132 or consent of the instructor.

*Three semester hours.*

Mr. Arndt.

165b. FROM EXPRESSIONISM TO CATASTROPHE.

Not offered, 1971-72.

German literature from World War I to World War II. Given in German. Prerequisite: German 132 or consent of the instructor.

*Three semester hours.*

Mr. Arndt.

166. GERMAN DRAMA SINCE KLEIST.

Not offered, 1971-72.

Given in German.

*Three semester hours each semester.*

Mr. Edwards.

190a. GOETHE.

Reading and discussion of the basic works of Goethe (excepting *Faust*) in English translation. Students able to work in the original German may take the course for variable credit and meet with the instructor for an additional hour of discussion carried on entirely in German. Given basically in English.

*Three semester hours.*

Mr. Arndt.

192b. SCHILLER.

Reading and discussion of the basic works of Schiller in English translation. Students able to work in the original German may take the course for variable credit and meet with the instructor for an additional hour of discussion with papers and discussions entirely in German. Given basically in English.

*Three semester hours.*

Mr. Arndt.

**196. INDEPENDENT READING AND RESEARCH IN GERMAN LITERATURE.**

Independent course of study limited to qualified juniors and seniors. Reading and research will be in German or English and the program arranged individually. Prerequisite: consent of the instructor.

*Three semester hours.*

Staff.

**COURSES GIVEN IN ENGLISH****16. FRESHMAN COLLOQUIUM ON MODERN GERMAN LITERATURE.**

The purpose of this course is to examine some of the dominant themes in modern German literature and to acquire skill in interpreting literary works. Enrollment is limited to assure every student the opportunity for active participation. Subject for fall, 1971: Selected prose works of Rilke, Mann, Hesse, Kafka, Grass, Given in English.

*Three semester hours.*

Mr. Schatzberg.

**141. GERMANIC CIVILIZATION.**

Not offered, 1971-72.

Illustrated lecture course on the literature, history and fine arts of German lands from the Holy Roman Empire to the present day, with emphasis on the Reformation, Age of Enlightenment and the Classical Period. Given in English.

*Three semester hours each semester.*

Mr. Edwards.

**145a. THE MEDIAEVAL COURTLY EPIC IN THE GERMAN LANDS.**

Influenced by the experience of the Crusades and the Holy Land, the legends of the Celtic King Arthur, the love poetry of Moorish Spain and the Provence, poets at the court of Eleanor of Aquitaine and Marie of Champagne created epic masterpieces, which were to be models for poets at German courts. The works of three of these men, Hartmann von Aue, Wolfram von Eschenbach and Gottfried von Strassburg, which have taken their place in world literature, will be at the center of this study. Given in English.

*Three semester hours.*

Mr. Edwards.

**150a. BAROQUE AND ROCOCO ART AND LITERATURE IN THE GERMAN LANDS.**

An illustrated lecture course treating the interrelationship of the art and literature of the German lands between 1648 and 1748, the poetry of the age striving to express in words what the artist will express in stone and painting. Given in English.

*Two semester hours.*

Mr. Edwards.

**160b. THE QUEST FOR THE PERFECT SOCIETY IN GERMAN LIFE AND LITERATURE.**

One of the strongest influences of German culture on the American way of life was exerted through such German-American communistic communities as Ephrata, The Harmony Society, The Separatists of Zoar, the Amana Society of True Inspiration, The Hutterities, and the Communia of Karl Marx's early collaborator Wilhelm Weitling. The success of the Harmony Society was a direct influence on the establishment of Alcott's Fruitlands and Brook Farm. The purpose of this course is to examine the German literary quest for the perfect life or society and compare it with the facts of life in the above-named and other "perfect societies." Among the translated German books to be read are: Andrea's *Christianopolis*, Grimmelshausen's *Simplicissimus*, Goethe's *Wilhelm Meister*, Nietzsche's *Zoraster*, Werfel's *Star of the Unborn*, Jünger's *Heliopolis*, and Hesse's *Bead Game*. Other works are: Nordhoff: *The Communistic Societies of the United States*, and Bestor: *Backwoods Utopias*. Given in English. No prerequisites.

*Two semester hours.*

Mr. Arndt.



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### 197b. THE FAUST THEME IN LITERATURE AND MUSIC.

Not offered, 1971-72.

A study of man's search for forbidden knowledge and power are represented in literature and music by the character of Faust from the Reformation to the present. The following major treatments of the theme are included in the course: *The History of the Damnable Life, and Deserved Death of Doctor John Faustus* (1592), Marlowe's *Dr. Faustus*, Klingler's *Faustus, His Life, Death, and Doom*, Goethe's *Faust*, Thomas Mann's *Dr. Faustus*, Paul Valery's *Mon Faust*, Lawrence Durrell's *An Irish Faust*, Berlioz's *Damnation of Faust*, Boito's *Mefistofele*, Gounod's *Faust*, and Liszt's *Faust Symphony*. Given in English.

*Three semester hours.*

Mr. Arndt.

### 198. SEMINAR.

Principally for advanced students of literature, this course aims at an interdisciplinary approach. Topic varies.

*Three semester hours.*

Staff.

### 199. THE GERMAN CONTRIBUTION TO WORLD LITERATURE.

Goethe in 1827: "The epoch of world literature is here and everyone must now work to hasten the development of this epoch." Reading, analysis and discussion of translated works from various periods of German literature, starting with the *Song of the Nibelungs* and ending with representative works of the currently dominant "Group 1947." Given in English. Prerequisite: consent of the instructor.

*Three semester hours each semester.*

Mr. Arndt.

## Government and International Relations

### DEPARTMENT FACULTY

Knud Rasmussen, Ph.D., *Associate Professor of Government, Department Chairman*

Morris H. Cohen, Ph.D., *Professor of Government*

Sherman S. Hayden, Ph.D., *Professor of International Relations*

Roger E. Kasperson, Ph.D., *Associate Professor of Government and Geography*

Allen E. Goodman, Ph.D., *Assistant Professor of Government and International Relations*

### UNDERGRADUATE PROGRAM

Government and International Relations has embarked upon an interdisciplinary program. The consequence is first to limit overall departmental requirements to two core courses. Second, the department will accept for departmental credit courses which are relevant to each subdivision of the discipline. The courses relevant for the five subdivisions are listed as a suggested sampling in this catalogue but not an exclusive one of courses within the social sciences. The main responsibility for development of the tracks lies with the departmental member responsible for his particular track. Although this development constitutes a clear departure from previous requirements, students who prefer a traditional Government or International Relations major are permitted to do so. The consequences are the possibilities of two departmental majors.

The traditional major requires that majors in government must take Government 159a and b and 205a and b, preferably in the freshman and sophomore or junior years respectively, and are expected further to take four additional hours in American government and politics, twelve other hours in government, and twelve hours selected from economics, geography, history, psychology and sociology.

Majors in international relations should take Government 159a and b and History 10 in the freshman year and Economics 11 and Government 14 before the end of the sophomore year. Also required are Government 240a or 242b, 241, and twelve hours selected from economics, geography, history, and from other government courses.

Government 159a and b and 205a and b, normally taken in the freshman and sophomore or junior years respectively, are considered the core of a track system. The track system permits the undergraduate student to specialize in any of the five areas of the discipline. Thus an undergraduate major can choose American politics, Urban politics, Comparative politics, Political theory, or International relations as his field of concentration. In choosing a major track, the student should bear in mind that each track will require a minimum of 16 credit hours in courses designated as integral parts of the chosen track. Yet this number of credit hours may vary from track to track. Since these courses are selected on an interdisciplinary basis, the student is advised to keep in close contact with the professor primarily responsible for his chosen track.

Beyond the courses designated as part of the track system in related fields, the major is expected to complete 12 hours selected from the social sciences, i.e., economics, geography, government, history, psychology, sociology, and computer science.

University requirements expect the major to complete 36 hours selected from fields other than social sciences listed in the preceding paragraph. Exceptions to this rule can be made at the discretion of the departmental faculty. The student therefore is encouraged to consult with his major faculty advisor in cases of doubt. For the international relations major, proficiency in a foreign language corresponding to a two-year study is required. The other tracks recommend a foreign language, statistics or mathematics at the level achieved at two years of normal study.

## GRADUATE PROGRAM

A major redefinition of graduate work in the Department has resulted in a master's program in international urbanization and public policy. This refocusing of graduate work is dictated by an internationally projected rapid urban growth which few public policy makers and urban planners have incorporated into plans and policies for the next decade. Our program, therefore, focuses on the phenomena of international urbanization and rapid urban growth as problems of public policy which can be explored within the interdisciplinary facilities of the teaching and research activities of the University.

Public Policy refers to the relationship which exists between the study of government and politics and the range of problems with which those processes deal both at the domestic and at the international levels. As a field of graduate study, our approach both to rapid urbanization and to public policy denotes an orientation in teaching and research designed to coordinate and stimulate an atmosphere of graduate education within which the freedom to innovate would be maximized. The graduate program as currently planned will be of two years' duration and will result in an M.A. in International Urbanization and Public Policy. In addition to a joint student-faculty colloquium in international urbanization and related course work in urban politics, comparative politics, and modernization theory, the program will stress multi-disciplinary approaches with courses available in cognate fields. At the end of the two-year program, we believe that students will be prepared for either continuing their studies at the Ph.D. level or entering a career in international public service. Every effort will be made by the program's director to facilitate this transition. It is also anticipated that by supporting one summer of field research or public service internship, the program will provide the kind of practical experience necessary to making such a decision.

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The degree of Doctor of Philosophy is being held in abeyance at the present time. It is expected that the redefined master's program will, in the course of a few years, lead to a doctorate degree in international relations and government. The requirements for this degree will relate closely to those normally spelled out for doctoral candidates but will be defined in accord with the requirements of the new focus of our graduate work.

### COURSES

#### 14. INTERNATIONAL RELATIONS.

A survey of world politics since 1918, with emphasis on the shifting patterns of power and the rise of new nations and revolutionary doctrines. The second semester deals mainly with events since World War II.

*Three semester hours each semester.*

Mr. Hayden.

#### 15a. INTRODUCTION TO AMERICAN GOVERNMENT.

An introductory study of American government with emphasis on contemporary problems of the federal government.

*Three semester hours.*

Mr. Cohen.

#### 159a,b. INTRODUCTION TO POLITICAL SCIENCE.

This course, required for all majors and part of the track system, will utilize a systematic framework in surveying the components of political science and in discussing the development of the discipline.

*Three semester hours each semester.*

Mr. Rasmussen.

#### 201b. POLITICAL BEHAVIOR.

Not offered, 1971-72.

Causes and forms of political behavior, their relation to the functioning of the political system: political socialization, imagery, apathy and alienation, decision-making, electoral behavior. Offered in alternate years. Prerequisite: Government 159.

*Four semester hours.*

Mr. Kasperson.

#### 205a. ROOTS OF POLITICAL THOUGHT.

A study of the development of Western political thought from the Socratic philosophies to Hobbes. The study will deal with the evolution of political thought in the context of influential, social, political, and economic forces.

*Four semester hours.*

Mr. Rasmussen.

#### 205b. RECENT POLITICAL THOUGHT.

A study of modern political theory as developed in the context of the social, political, and economic forces which have shaped Western thought since the French Revolution.

*Four semester hours.*

Mr. Rasmussen.

#### 207a. BLACK POLITICAL THOUGHT.

A study tracing a conscious development within the black community starting from the slave society and moving to the present. In the process, three lines of thought are developed: a) the political thought of accommodation, b) the political thought of protest, and c) the political thought of revolutionary confrontation. Prerequisite: Negro in American History or permission of the instructor.

*Four semester hours.*

Mr. Rasmussen.



**220a. URBAN GOVERNMENT AND POLITICS.**

Structure and process in American urban politics: ethos theory, the political machine, community control, models of urban power structure, political actors in conflict. Emphasis will be placed on field experience and the application of theory to Worcester politics. Prerequisite: Government 15 or 159.

*Four semester hours,*

Mr. Kasperson.

**222b. URBAN PUBLIC POLICY ISSUES.**

Research on one or several major policy issues in Worcester and/or other cities. The particular policy theme for the course may vary from year to year. Research includes analysis of the nature of a particular policy problem as well as strategies for public intervention. Prerequisite: Government 220a or permission of the instructor.

*Four semester hours,*

Mr. Kasperson.

**230b. BEHAVIORAL PERSPECTIVES IN POLITICAL GEOGRAPHY.**

The interaction between space and process in political behavior and the functioning of the political system. Topics include integration and disintegration, diffusion, modernization, territorial behavior, conflict theory and locational decision-making. Attention will also be given to the post-behavioral revolution. Prerequisite: Geography 230a or permission of the instructor.

*Four semester hours,*

Mr. Kasperson.

**240a. SEMINAR IN INTERNATIONAL RELATIONS.**

Basic ideas and their application to current problems. This or 242b required for international relations majors. Open to a limited number of non-majors at the discretion of the instructor.

*Four semester hours,*

Mr. Hayden.

**241. INTERNATIONAL LAW AND ORGANIZATION.**

Not offered, 1971-72.

First semester deals with the historic principles of international law and their application in the modern world. Second semester deals with the institutions created to handle problems of commerce, welfare and collective security on an international basis. Offered in alternate years.

*Four semester hours each semester,*

Mr. Hayden.

**242b. INTERNATIONAL POLITICS.**

A study of contemporary trends in international politics. Some emphasis will be placed on a systematic study of the national versus the international community. This course or 240b is required for international relations majors.

*Four semester hours,*

Mr. Rasmussen.

**243a. AMERICAN DIPLOMATIC HISTORY, 1778-1941.**

*Four semester hours,*

Mr. Hayden.

**25b. COMPARATIVE GOVERNMENT.**

Not offered, 1971-72.

A comparative study of the major West European political systems. Study of the political historic development will lay the basis for comparison of modern functions of government. Stress is placed on political socialization and its importance for comparative politics.

*Four semester hours,*

Mr. Rasmussen.

**250. SEMINAR IN 20th CENTURY POLITICAL THEORY.**

A study of normative and analytic theory. Some emphasis will be placed on the individual in a modern mass society and the impact the development of the mass society has had upon theory. Prerequisite: Roots of Political Thought and Recent Political Thought or the permission of the instructor.

*Four semester hours,*

Mr. Rasmussen.



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### 251a. AMERICAN POLITICAL PARTIES.

Not offered, 1971-72.

American party organizations, pressure groups and the electorate in American politics, with emphasis on current problems and trends in the field. Offered in alternate years.

*Four semester hours.*

Mr. Cohen.

### 252a. PUBLIC ADMINISTRATION.

Not offered, 1971-72.

### 254a,b. AMERICAN CONSTITUTIONAL HISTORY AND LAW.

A study of the major developments and problems in American constitutional history and law, with emphasis on historical and non-civil liberties issues in the first semester. The second semester is especially concerned with contemporary cases and problems in civil liberties. Prerequisite: Government 15a.

*Four semester hours each semester.*

Mr. Cohen and Mr. Campbell.

### 255b. SEMINAR IN THE LEGISLATIVE PROCESS.

A study of policy-making in Congress, involving problems of legislative organization and procedure, leadership and presidential-legislative relationships, examined primarily by the case method and by individual research on particular pieces of recent legislation. Prerequisite: Government 15a.

*Four semester hours.*

Mr. Cohen.

### 257a. SEMINAR IN AMERICAN ETHNIC POLITICS.

The historical and contemporary role of ethnic and religious groups in American politics, with special attention to urban minorities. Prerequisite: permission of the instructor.

*Four semester hours.*

Mr. Cohen.

### 260a. INTRODUCTION TO COMPARATIVE POLITICAL ANALYSIS.

The course will survey the growth of the field of comparative government and its methodology and focus upon the use of crossnational data and analyses in political research. A series of propositions about the nature of political order and political change will be advanced in order to examine the causes and results of revolution, reform, social mobilization, economic development, and the creation of political institutions and political power in developing societies. Particular emphasis will be placed upon the use of case studies in comparative analyses and upon the development of standards of evidence in comparative research.

*Four semester hours.*

Mr. Goodman.

### 261a. DEVELOPMENT ADMINISTRATION AND POLITICAL CHANGE. Not offered, 1971-72.

An examination of the effects of foreign assistance upon political change in developing societies. Emphasis will be given to the nature of the transformation of American diplomatic and military assistance programs into overseas "developmental missions," the significance of Title IX of the U.S. Foreign Assistance Act, the political impact of western models of bureaucracy and public administration upon developing countries, and the problems of the transferability of and resistance to the export of development patterns and administration structures. Extensive use of case studies and student group research reports is anticipated.

*Four semester hours.*

Mr. Goodman.

**262b. EXPORTING DEVELOPMENT: MODERNIZATION AS A POLITICAL THEORY.**

A critical examination of western models of development and the reaction to such models as they have been applied in developing societies. Readings and lectures will be drawn primarily from the writings of non-western scholars and political leaders and the radical critiques of such western concepts as revolution, reform, nationalism, and ideology.

*Four semester hours,*

Mr. Goodman,

**263b. COMPARATIVE PERSPECTIVES ON THE GOVERNMENT AND POLITICS OF MODERN SOUTHEAST ASIA.**

Not offered, 1971-72.

An examination of the problems of government facing the countries of Southeast Asia and their implications for political order and stability. Students will be required to complete their own background survey of the region in the early weeks of the course and subsequent discussions will focus upon the impact of colonialism, "split" and "cold" revolutions, foreign intervention, internal war, and the existence of ethnic and religious diversity on current theories of political development within the larger context of comparative political analysis.

*Four semester hours,*

Mr. Goodman,

**266a. SEMINAR: THE PROCESS OF RESEARCH.**

Among all fields of enquiry, are there certain pragmatic concerns and procedures of research? What is the nature of the process of research as it is practiced in the social sciences? Of what value to the political scientist is the multi-disciplinary approach? These three questions are the core concerns of this seminar which will examine from a comparative perspective the process of research. Extensive and frequent written work will be required as questions of methodology, evidence and inference, research designing, causal modelling, and documentary analysis are discussed. One third of the seminar will be devoted to examining those techniques which bring research and writing into a complementary relationship, one third to developing an appreciation of and methodology for inter- and multi-disciplinary studies, and one third to questions with specific relevance to the participant's current or anticipated research projects. Open to honors candidates, graduate students, and others by permission.

*Four semester hours,*

Mr. Goodman,

**267b. SEMINAR: NEGOTIATION AND THE POLITICAL PROCESS.**

What is the nature of the process by which governments and other organizations conduct their business? In seeking to explore the question, the seminar will focus upon the behavioral processes by which organizational conflicts are regulated and organizational compromises achieved. Theoretical and behavioral dimensions of the process of negotiations will be explored through the use of the case study method and simulation in such fields as university governance, budgetary decision-making, labor-management relations, adversary procedures, and great power diplomacy.

*Four semester hours,*

Mr. Goodman,

**268a. SEMINAR: THE POLITICS OF REVOLUTION IN MODERN VIETNAM.**

An examination of the "cold" revolution in South Vietnam as a problem in the theory of political change. Saliency of intervention, ethnic and communal pluralism, ideology, and internal war to the creation of political power in praetorian political systems will form the principal foci of seminar meetings. Open to juniors, seniors, and graduate students.

*Four semester hours,*

Mr. Goodman,

**269b. SEMINAR: THE EFFECTS OF URBAN GROWTH ON POLITICAL BEHAVIOR.**

An application of Hartzian analysis of "fragment" cultures to the study of comparative urbanization. The initial meetings of the seminar will be devoted to developing a framework for the analysis of urbanization and political behavior in urban settings. Subsequent meetings will be devoted to the

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discussion of selected cases in developed and developing societies as analyzed by seminar participants with a view towards identifying a set of propositions for use in the study of comparative urbanization. Open to juniors, seniors, and graduate students.

*Four semester hours.*

Mr. Goodman.

### 351a. PROBLEMS IN AMERICAN GOVERNMENT AND POLITICS

*Four semester hours.*

Mr. Cohen

INTERDISCIPLINARY LISTINGS: FOR UNDERGRADUATE AND GRADUATE PROGRAMS IN THE DEPARTMENT, NOT EXCLUSIVE.

### Geography 131b. THE GEOGRAPHY OF INTERNATIONAL POLITICS.

*Three semester hours.*

Mr. Cohen and Mr. Kasperson.

### Geography 161b. GEOGRAPHY OF AMERICAN POVERTY.

*Three semester hours.*

Mr. Peet.

### Philosophy 13b. SOCIAL PHILOSOPHY.

*Three semester hours.*

Mr. Beck.

### Philosophy 18a. HISTORY OF AMERICAN PHILOSOPHY.

*Three semester hours.*

Mr. Beck.

### Psychology 170a. INTRODUCTION TO SOCIAL PSYCHOLOGY.

*Three semester hours.*

Mr. deRivera.

### Economics 207b. INTERNATIONAL ECONOMICS.

*Three semester hours.*

Mr. VanTassel.

### Economics 327a. INTERNATIONAL TRADE THEORY.

*Four semester hours.*

Mr. Gummerson.

### Geography 230a. POLITICAL GEOGRAPHY AND ITS SPACIAL CONSEQUENCES.

*Four semester hours.*

Mr. Cohen.

### Geography 261a. URBAN GEOGRAPHY.

*Four semester hours.*

Mr. Knos.

### History 210a. "OLD EUROPE" AND THE *ANCIEN REGIME*, 1550-1789.

*Four semester hours.*

Mr. Lucas.

### History 210b. THE FRENCH REVOLUTION AND THE COMPARATIVE STUDY OF REVOLUTIONS.

*Four semester hours.*

Mr. Lucas.

### History 218a. 18th-CENTURY EUROPEAN INTELLECTUAL HISTORY.

*Four semester hours.*

Mr. Lucas.

### History 218b. 19th-CENTURY EUROPEAN INTELLECTUAL HISTORY.

*Four semester hours.*

Mr. Lucas.

### History 246a. THE AMERICAN CITY.

*Four semester hours.*

Miss Hareven.

### History 208b. PROSEMINAR: TOTALITARIANISM.

*Four semester hours.*

Mr. Borg.

### READING, RESEARCH, AND THESIS COURSES

#### 88 Directed Readings

Staff.

#### 89 Group Studies in International Relations

Mr. Hayden.

#### 34 Reading in International Relations

Mr. Hayden, Mr. Rasmussen  
and Mr. Goodman.

#### 340 Thesis in Government and Politics

Mr. Cohen, Mr. Kasperson,  
and Mr. Rasmussen.

#### 35 Reading

#### 350 Thesis

|                                                                                                   |               |
|---------------------------------------------------------------------------------------------------|---------------|
| History 211b. TWENTIETH-CENTURY GERMANY.<br><i>Four semester hours.</i>                           | Mr. Borg.     |
| History 282b. SOVIET RUSSIA, 1917-1960.<br><i>Four semester hours.</i>                            | Mr. Von Laue. |
| History 295b. PROSEMINAR: GHANA, A CASE HISTORY OF WESTERNIZATION.<br><i>Four semester hours.</i> | Mr. Von Laue. |
| Psychology 270a. ADVANCED TOPICS IN SOCIAL PSYCHOLOGY.<br><i>Three semester hours.</i>            | Mr. Laird.    |
| Sociology 220a. POWER AND DECISION MAKING.<br><i>Three semester hours.</i>                        | Mr. Hewitt.   |
| Sociology 221a. POLITICAL SOCIOLOGY.<br><i>Three semester hours.</i>                              | Mr. Hewitt.   |
| Sociology 222a. SEMINAR IN SOCIAL POLICY.<br><i>Three semester hours.</i>                         | Mr. Stanton.  |
| Sociology 276a. ETHNOGRAPHY OF THE CARIBBEAN.<br><i>Three semester hours.</i>                     | Mr. Gerber.   |

# History

## DEPARTMENT FACULTY

Daniel R. Borg, Ph.D., *Associate Professor of European History, Department Chairman*

Thomas C. Barrow, Ph.D., *Professor of American History*

George A. Billias, Ph.D., *Professor of American History*

Robert F. Campbell, Ph.D., *Professor of American History*

Theodore H. Von Laue, Ph.D., *Jacob and Frances Hiatt Professor of European History*

Richard B. Ford, Ph.D., *Associate Professor of African History*

Tamara K. Hareven, Ph.D., *Associate Professor of American History*

William A. Koelsch, Ph.D., *Associate Professor of American History and Geography\**

Paul Lucas, Ph.D., *Associate Professor of European History*

David W. Savage, Ph.D., *Assistant Professor of English History*

Marcus A. McCorison, M.S., *Lecturer in American History, Director of the American Antiquarian Society*

## *Professors Emeriti in Residence:*

H. Donaldson Jordan, Ph.D., *Professor of English History, Emeritus*

Dwight E. Lee, Ph.D., *Jacob and Frances Hiatt Professor of European History, Emeritus*

\*On leave of absence, second semester, 1971-72.



## 140 HISTORY

### UNDERGRADUATE PROGRAM

*Undergraduate Major:* A student majoring in history takes 36 credit hours in history. Of the advanced (200 level) history courses in a major's program, at least eight hours must be in American and at least eight hours in non-American history. An additional twelve hours must be taken in economics, geography, government, psychology, or sociology (as related fields), and, for distribution purposes, 36 hours outside of these fields and of history.

The department recommends, though it does not require, that its undergraduate majors attain proficiency in at least one modern foreign language. Students planning to go on to graduate school are advised that demonstration of competence in one or more appropriate foreign languages is an important consideration in the admissions and fellowship award process of most leading universities. Students should also note that a knowledge of statistics and computer usage is highly desirable for advanced work in history.

*Special Programs:* Majors in history are encouraged to work out in consultation with their adviser a coherent program of study. Special attention should be paid to opportunities for interdisciplinary programs of study. A few examples follow:

|                  |                       |
|------------------|-----------------------|
| French Studies   | Social History        |
| English Studies  | Intellectual History  |
| Black Studies    | Economic History      |
| German Studies   | International Affairs |
| American Studies | Political History     |
| Urban Studies    | Historical Geography  |

Whatever special program the student chooses to pursue, the Department recommends that he submit to his adviser *in writing* a statement of the purpose of his program and a tentative list of courses. Such conscious planning is desired but not required of the major.

Students may extend the scope of their undergraduate programs through the offerings of cooperating colleges in Worcester, by independent study and research, and in the honors program in history. Further information about these matters is available from the department chairman or other members of the department.

### GRADUATE PROGRAM

The principal areas of graduate study are American, English, and modern European history. The department's affiliation with the American Antiquarian Society provides graduate students with the facilities of one of the country's finest research libraries, with over 750,000 volumes and many valuable manuscripts relating to early American history down to 1876. A dozen smaller libraries in Worcester, with combined holdings of over a million volumes, further extend the resources of the Clark Library, as does easy access to Boston, Providence, and New Haven area research facilities.

Course offerings on the graduate level distinguish between reading seminars ("colloquia") and research seminars (simply "seminars"). Whether in the Ph.D. or M.A. programs, students register for a research seminar or an individual research course in each semester of their formal residence, and all students take the Departmental Seminar (300). First and second year students take three courses each semester. Beyond the seminar requirement, students fill out their programs by taking colloquia, additional research seminars, independent study and research courses, and upper-division undergraduate history courses. The chairman initially assigns students to advisers, who help work out individual programs. With the permission of his adviser, a student is encouraged to take suitable courses in other departments.

*Master of Arts:* Students interested primarily in an M.A. degree and not in the doctorate are normally not admitted to graduate study. The M.A. is awarded to graduate students who have completed the course and one-year residence requirements, have written substantial research papers in two seminars or in individual research courses and have passed the required oral examination.

## DOCTOR OF PHILOSOPHY

The Department offers two related doctoral programs. One, known as the TTT program, combines the traditional core of the doctoral program with a study of interdisciplinary techniques and experience in curriculum development and teaching. Information may be obtained from Professor Ford, the Director of the TTT program. The second doctoral program is the traditional one described below.

The traditional doctoral program is designed to enable students to master the discipline of history through research, reading, and teaching. In addition to meeting the seminar and course requirements outlined above, a student who enters without an A.M. degree must spend at least three years in full-time residence at Clark, satisfy the language requirement, gain some experience in college teaching, pass a preliminary examination, and write a doctoral dissertation within seven years of matriculation.

*Language Requirement:* Students concentrating in American and British history must pass an examination in one foreign language: French, German, Spanish, or Russian. Those specializing in European history must pass examinations in two foreign languages, normally French and German. The chairman will designate an examiner in each language, who will determine whether the student is proficient enough to use the language as a research tool. An entering student must take a language examination as soon as it is offered in his first semester of residence, and must have passed this examination by the end of the first calendar year of residence in order to register for his second year. If required, the second language examination should be attempted early in the second year and must be completed before the student registers for his third year. All language requirements must be satisfied before the preliminary oral examination can be scheduled.

*Teaching Experience:* Some teaching experience at the college level is a prerequisite of the Ph.D. degree. Students normally meet this requirement in their second or third years as teaching assistants.

*Fields:* Soon after arriving at Clark, the student, in cooperation with his adviser, defines four fields and prepares for them in whatever ways seem appropriate in view of his background and interests. Students specializing in American history normally offer the full scope of American history as two fields. Those concentrating in non-American history normally offer one American field (the dividing line between the two American fields generally falls at 1815). Any student may offer a non-historical subject as a field, usually within the social sciences, or prepare a field in social science theory and research techniques.

*Preliminary Examination:* One of the four fields is completed early through an oral examination, and the remaining three fields are tested in an oral examination, which must be attempted by the fall of the third year. The two oral examinations over the four fields constitute the "preliminary examination" required by the Graduate Board.

*Dissertation:* Students are advised to consider and explore dissertation topics during their years of residence and to choose a possible dissertation adviser as soon as possible. The process of writing a dissertation is outlined in a brochure, "Dissertation S.O.P.," which may be obtained from the Department secretary.

*Deadline for Completion:* All work required for the doctor's degree *must* be completed within a seven-year period after matriculation. In unusual circumstances only, such as involuntary military service or extended illness, the department may grant a specified extension of time.

Note: The course offerings below do not include a number of courses that may be taken through the Consortium of colleges in the Worcester area. The department recommends especially that students consider courses at Holy Cross in medieval, Renaissance and Reformation, and Latin American history.

Unless otherwise indicated, all courses carry four hours credit. The term *colloquium* indicates courses of limited enrollment that center on reading and discussion. The term *proseminar* indicates courses that are likewise limited and combine reading, discussion, and short reports. Finally, the term *seminar* indicates courses of limited enrollment that are organized around a major research paper.

## COURSES

### 11a. PROSEMINAR: THE ANCIENT ORIGINS OF WESTERN CULTURE.

Reading and discussion will concentrate on the Greek, Judeo-Christian and Roman elements of Western culture. Analytical techniques from the social sciences will be employed as an aid in developing an historical understanding.

Mr. Savage.

### 14a. HISTORY OF ASIA (to 1800).

Not offered, 1971-72.

A survey of Asian history to the present, emphasizing India, China, and Japan.

Mr. Barrow.

### 14b. HISTORY OF ASIA (1800-Present).

Not offered, 1971-72.

### 17a. PROSEMINAR: ORIGINS OF CONTEMPORARY AMERICAN THEMES

Readings and discussion dealing with issues of historical interpretation that relate to contemporary social and political problems.

Mr. Billias.

### 17b. PROSEMINAR: ORIGINS OF CONTEMPORARY AMERICAN THEMES.

Mr. Campbell.

### 19a. TRADITIONAL AFRICA.

The development of several pre-European civilizations in Africa, including those of Kush, the Sudanic Kingdoms, the Zanj, Zimbabwe, and Nok-Ife-Benin. An anthropological approach will be used to explore traditional African society and values.

Mr. Ford.

### 19b. MODERN AFRICA.

A study of differing views on European penetration of Africa, including an analysis of slavery and the slave trade, exploration, the missionary movement, imperialism, and independence, and concentrating on southern Africa and areas of English influence.

Mr. Ford.

### 124a. ENGLAND'S "OLD REGIME".

Not offered, 1971-72.

The structure and possible causes of the peculiarities of English state and society compared with continental Europe's from the late Middle Ages to about 1800.

Mr. Lucas.

### 125b. BRITAIN IN THE 19th AND 20th CENTURIES.

The development of British culture and society in the industrial age.

Mr. Savage.

### Economics 150a. ECONOMIC HISTORY OF THE UNITED STATES.

An analysis of the development of the American economy. Prerequisite: Economics 11. Three semester hours, counts as a history course within the major.

Mr. Gummerson.



**201b. COLLOQUIUM: EUROPEAN SOCIAL HISTORY.**

A critical examination of several conceptualizations of, and famous problems in, European social history from the Middle Ages to the twentieth century.

Mr. Lucas.

**208a. PROSEMINAR: TOTALITARIANISM.**

A study of the nature of totalitarianism and of the origins, ideology, and operation of the German Nazi regime.

Mr. Borg.

**210a. "OLD EUROPE" AND THE *ANCIEN REGIME*, 1550-1789.**

A study of the nature and impact of absolutism, mercantilism, early capitalism, and modern science upon "Old Europe" and the system of European states before the French Revolution.

Mr. Lucas.

**210b. THE FRENCH REVOLUTION AND THE COMPARATIVE STUDY OF REVOLUTIONS.**

Not offered, 1971-72.

An analysis of old and new ideas of revolution, including ritual, resistance, reactionary restoration vs. innovation; of the "democratic" revolution; of the psychology, sociology, and social psychology of revolutionary behavior; and of the relevance of the French Revolution to 20th-century issues.

Mr. Lucas.

**211b. TWENTIETH-CENTURY EUROPE.**

Mr. Borg.

**215b. MODERN GERMANY.**

Not offered, 1971-72.

An examination of the convulsive course of German history over the past century.

Mr. Borg.

**217b. PROSEMINAR: WORLD WAR I AND EUROPEAN SOCIETY.**

Not offered, 1971-72.

An examination through primary and secondary sources of the consequences of the war for European politics, thought, values, and social organization.

Mr. Savage.

**218a. 18th-CENTURY EUROPEAN INTELLECTUAL HISTORY.**

The "Enlightenment" and its critics: the scientific revolution, philosophical reformism, and early conservative romanticism. The emphasis is on methods of intellectual history as focused upon rival perceptions of man's psychological and social nature, history, and aesthetic and religious sensibilities.

Mr. Lucas.

**218b. 19th-CENTURY EUROPEAN INTELLECTUAL HISTORY.**

The elaboration of the "Enlightenment" by its heirs and critics. The emphasis remains the same as in 218a, but the focus shifts to an analysis of political and economic liberalism, social Darwinism, "utopian" and "scientific" socialism, positivism, nationalism and racism, old and new conservatism, and the reassessment of the values and progress of European civilization.

Mr. Lucas.

**221a. PROSEMINAR: VICTORIAN BRITAIN.**

Mr. Savage.

**222b. SEMINAR: BRITAIN IN THE TWENTIETH CENTURY.**

Not offered, 1971-72.

Mr. Savage.

**231a. THE EXPANSION OF EUROPE, 1400-1600.**

A survey of the origins and consequences of European expansion in its formative stages, with particular emphasis on English developments.

Mr. Barrow.

**232b. ENGLAND IN AMERICA, 1600-1700.**

Not offered, 1971-72.

An analysis of the process and consequences of the transplanted of Englishmen and English traditions to the new American environment.

Mr. Barrow.

**233a. ERA OF THE AMERICAN REVOLUTION.**

Not offered, 1971-72.

An analysis of American society in the pre-Revolutionary period with particular emphasis upon the ideological and political developments that led to the War of Independence.

Mr. Billias.



## 233b. FORMATION OF THE NEW NATION.

An analysis of the American revolutionary experience, political theories in the making of the Federal Constitution, problems of the new government, and developments in the American political tradition through the Jeffersonian era.

Mr. Billias.

## 235b. THE UNITED STATES IN THE 20th CENTURY.

Not offered, 1971-72.

An analysis of the transformation of America into a modern society and of the tensions and problems of adjustment in this process.

Miss Hareven.

## 238b. THE BLACK EXPERIENCE IN AMERICAN HISTORY.

## 240b. PROSEMINAR: THE AMERICAN CHARACTER.

A study of the problem of national character and its historical validity.

Mr. Barrow.

## 241a. PROSEMINAR: HISTORY OF AMERICAN HIGHER EDUCATION.

The role of higher education in American life from 1636 to the present, with emphasis on the rise and character of the American university.

Mr. Koelsch.

## 242b. AMERICAN ECONOMIC HISTORY.

A survey of American economic development from colonial days to the present.

Mr. Barrow.

## 243a. AMERICAN DIPLOMATIC HISTORY, 1778-1941.

Mr. Hayden.

## 244b. PROSEMINAR: CHILDHOOD, YOUTH, AND FAMILY IN AMERICAN HISTORY.

An interdisciplinary study of the changing attitudes of society toward childhood and the family, the varieties of family experience, and the problems of youth in historical perspective.

Miss Hareven.

## 245a. HISTORICAL GEOGRAPHY OF THE EASTERN UNITED STATES.

Studies in settlement and resource utilization on the eastern seaboard before 1860.

Mr. Koelsch, Mr. Peet.

## 246a. THE AMERICAN CITY.

Major themes in the social and cultural development of American cities from colonial origins to the present. Focus on the process of urbanization. Comparison with European cities.

Miss Hareven.

## 247b. PROSEMINAR: THE PROGRESSIVE ERA.

Mr. Campbell.

248b. PROSEMINAR: ETHNICITY, AND RACE IN AMERICAN HISTORY. Not offered, 1971-72.

Miss Hareven.

## 250a. AMERICAN THOUGHT AND CULTURE: THE GREAT AWAKENING THROUGH THE CIVIL WAR.

Not offered, 1971-72.

Emphasis on the shaping effects of the nineteenth-century experience on American ways of thinking.

Mr. Koelsch.

251a. AMERICAN THOUGHT AND CULTURE: CIVIL WAR TO THE PRESENT. Mr. Campbell.

252b. HISTORICAL GEOGRAPHY: METHODS, TECHNIQUES AND SOURCES. Not offered, 1971-72.

Mr. Koelsch, Mr. Bowden.

## 254a. AMERICAN CONSTITUTIONAL HISTORY AND LAW.

A study of the major developments in American constitutional history and law, with emphasis on historical and non-civil liberties issues.

Mr. Campbell, Mr. Cohen.

## 254b. AMERICAN CONSTITUTIONAL HISTORY AND LAW.

The second semester is concerned especially with contemporary cases and problems in civil liberties.

Mr. Campbell, Mr. Cohen.

## 274b. THE MODERN FAR EAST.

Primarily international relations in the region since 1895.

Mr. Hayden.

## 280b. RUSSIA TO 1825.

A survey of the rise of the Russian Empire, with particular emphasis on the 17th and 18th centuries.

Mr. Von Laue.

## 281a. RUSSIA, 1825-1917.

Not offered, 1971-72.

An outline of Russian development from the early nineteenth century to the collapse of the tsarist regime. The emphasis lies on political history with occasional exploration of literary and economic history as well.

Mr. Von Laue.

## 282b. SOVIET RUSSIA, 1917-1960.

Not offered, 1971-72.

An outline of Soviet development from the Bolshevik revolution to the present, with special emphasis on the formation of the Soviet regime and the rise and fall of Stalinism.

Mr. Von Laue.

## 283a. RUSSIA IN 1917

A study of Russia in the year of revolution. Investigation will center on the weakness of the Provisional Government and the causes of the Bolshevik success. Discussion of sources (in English) and a term paper required.

Mr. Von Laue.

## 290a. PROSEMINAR: PERSPECTIVES OF WESTERNIZATION, 1890-1960. Not offered, 1971-72.

A discussion of the scholarly literature on modernization and westernization, with detailed analysis of select issues.

Mr. Von Laue.

## 294a. HISTORY OF GHANA.

The interaction of western and African cultures traced through the history of the Gold Coast and Ghana, with special emphasis on the 20th century.

Mr. Von Laue.

## 295b. PROSEMINAR: GHANA, A CASE HISTORY OF WESTERNIZATION. Not offered, 1971-72.

An analysis of the western penetration of the Gold Coast and the emergence of the state of Ghana, to the fall of Nkrumah.

Mr. Von Laue.

## 296a. PROSEMINAR: PRE-EUROPEAN AFRICA.

Not offered, 1971-72.

A consideration of economic, social, and political developments in Africa prior to the arrival of Europeans. Prerequisite: 19a, 19b, or equivalent.

Mr. Ford.

## 297b. PROSEMINAR: MODERN AFRICA.

Not offered, 1971-72.

Focus on the changes which European policies and values have created in Africa. Prerequisite: 19a, 19b, or equivalent.

Mr. Ford.

## 88. SPECIAL PROJECTS.

Undergraduates, normally juniors and seniors, may construct a reading or research course with an instructor of their choosing. The consent of the instructor *must* be obtained in advance. Variable credit.

## 299. DEPARTMENTAL HONORS.

Staff.

## 300. DEPARTMENTAL SEMINAR.

A survey of some major schools of historical study and of their methods, in search of a suitable historical approach to the contemporary scene.

Mr. Von Laue.

## 300b. THE DEPARTMENTAL SEMINAR.

The philosophy of history and the history of the idea of history.

Mr. Von Laue.

## 303. SOCIAL SCIENCE SEMINAR.

TTT Staff.

## 305. CURRICULUM DEVELOPMENT IN THE TEACHING OF SOCIAL STUDIES

TTT Staff.

## 328a. SEMINAR: ORIGIN AND NATURE OF DEMOCRACY IN PRE-REVOLUTIONARY AMERICA.

Mr. Barrow.

|                                                                                                                                                                                                                               |                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| 330b. SEMINAR: RISE OF POLITICAL PARTIES IN THE EARLY AMERICAN REPUBLIC.<br>Ideology, Aims, and Practices of the Federalists and Jeffersonian Republicans.                                                                    | Mr. Billias.                                         |
| 392. STUDIES IN 19th-CENTURY AMERICAN HISTORY.                                                                                                                                                                                | Mr. Koelsch.                                         |
| 393. STUDIES IN RECENT AMERICAN HISTORY.                                                                                                                                                                                      | Miss Harevan.                                        |
| 394. STUDIES IN RECENT AMERICAN HISTORY.                                                                                                                                                                                      | Mr. Campbell.                                        |
| 395. STUDIES IN AMERICAN INTELLECTUAL HISTORY.                                                                                                                                                                                | Mr. Beck.                                            |
| 397. STUDIES IN DIPLOMATIC HISTORY AND INTERNATIONAL RELATIONS.                                                                                                                                                               | Mr. Hayden.                                          |
| 398. STUDIES IN COMPARATIVE HISTORY.                                                                                                                                                                                          | Mr. Von Laue.                                        |
| 331b. SEMINAR: THE MIDDLE PERIOD OF AMERICAN HISTORY, 1815-1877.                                                                                                                                                              | Not offered, 1971-72.<br>Mr. Koelsch.                |
| 334. INTRODUCTION TO RESEARCH IN AMERICAN COLONIAL HISTORY.<br>Historiography of leading American colonial historians from colonial times to the present combined with an examination of bibliographical guides to the field. | Not offered, 1971-72.<br>Mr. Billias, Mr. McCorison. |
| 338a. SEMINAR: AMERICAN SOCIAL HISTORY.<br>Focus on the problem of social change and continuity in American society. Emphasis on the city and the family.                                                                     | Miss Hareven.                                        |
| 339a. SEMINAR: AMERICAN URBAN HISTORY.<br>The focus falls on the American adjustment to the urban, industrial experience. Research will utilize original sources in Worcester and other New England towns.                    | Not offered, 1971-72.<br>Miss Hareven.               |
| 342a. COLLOQUIUM: THE LITERATURE OF AMERICAN HISTORY (to 1815).                                                                                                                                                               | Mr. Billias.                                         |
| 343a. COLLOQUIUM: THE LITERATURE OF AMERICAN HISTORY (since 1815).                                                                                                                                                            | Staff.                                               |
| 381. STUDIES IN MEDIEVAL EUROPEAN HISTORY.                                                                                                                                                                                    | Mr. Barrow, Mr. Savage.                              |
| 382. STUDIES IN EARLY MODERN EUROPEAN HISTORY.                                                                                                                                                                                | Mr. Lucas.                                           |
| 383. STUDIES IN MODERN EUROPEAN HISTORY.                                                                                                                                                                                      | Mr. Borg, Mr. Von Laue.                              |
| 384. STUDIES IN MODERN BRITISH HISTORY.                                                                                                                                                                                       | Mr. Savage.                                          |
| 385. STUDIES IN RUSSIAN HISTORY.                                                                                                                                                                                              | Mr. Von Laue.                                        |
| 388. STUDIES IN AFRICAN HISTORY.                                                                                                                                                                                              | Mr. Ford.                                            |
| 390. STUDIES IN EARLY AMERICAN HISTORY.                                                                                                                                                                                       | Mr. Barrow.                                          |
| 391. STUDIES IN 18th-CENTURY AMERICAN HISTORY.                                                                                                                                                                                | Mr. Billias.                                         |

## Linguistics

|                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------|---------------|
| ENGLISH 198. INTRODUCTION TO LINGUISTICS.                                                              | Fall, 1971.   |
| ENGLISH 199. COMPARATIVE AND HISTORICAL LINGUISTICS.                                                   | Spring, 1972. |
| <i>Courses in Linguistics Offered at the College of the Holy Cross and Open to Students from Clark</i> |               |

*University:* English 198 is devoted to the theory and methodology of descriptive linguistics. The course deals with the nature and function of language, the relation between speech and writing, phonology, morphology, syntax, lexicology, the sociocultural setting of language, the contact of linguistic systems, and the problems of "correctness." English 199 examines the theory and methodology of comparative and historical linguistics. It focuses on linguistic geography, linguistic borrowing, the causes of linguistic change, the comparative method and reconstruction, and problems in analyzing languages with and without a literary tradition. In both courses, emphasis is placed upon the dynamics of systems analysis.

*Three semester hours each semester.*

Mr. Macris.

# 115. MAN AND LANGUAGE.

An introduction to the analysis of the nature and function of human language and its role in the life of individuals and societies. The approach is interdisciplinary, with attention to the points of view of philology, contemporary linguistics, anthropology, psychology and philosophy. The lectures focus on such questions as: What is language? What is the relation between language and thought? To what extent does our language determine how we perceive the world? Why and how do languages change? What other functions does language serve besides communication? Why do we not have a world language? How have linguists achieved an objective, scientific analysis of linguistic systems? What are the limitations of such a science?

The course is designed for the general student who wishes to know more about the nature of the uniquely and universally human institution of language, and for the student or teacher of English or foreign languages who is interested in the light which linguistic science can throw upon the relations between his field and other areas of life and knowledge.

First semester: lectures. Second semester: a seminar in which the members of the group report in depth on problems of their choosing.

Consent of the instructor required. Offered in alternate years.

*Three semester hours each semester.*

Mr. Reid

## Psychology 228b. PSYCHOLOGY OF LANGUAGE.

See description under psychology.

Mr. Kaplan.

## English 250. HISTORY OF THE ENGLISH LANGUAGE.

See description under English.

Mr. Macris.

## English 255b. SEMINAR: OLD ENGLISH.

See description under English.

Mr. Macris.

## English 260b. SEMINAR: MODERN AMERICAN ENGLISH.

See description under English.

Not offered, 1971-72.

Mr. Macris.

## English 261b. SEMINAR: LINGUISTIC APPROACHES TO LITERATURE.

See description under English.

Mr. Macris.



# Mathematics

## DEPARTMENT FACULTY

John F. Kennison Ph.D., *Associate Professor of Mathematics, Acting Department Chairman*

Zalman Rubinstein, Ph.D., *Professor of Mathematics*

Norman Sondak, Dr. of Eng's., *Professor (Affiliate) of Mathematics*

Bhama Srinivasan, Ph.D., *Associate Professor of Mathematics*

John S. Stubbe, Ph.D., *Associate Professor of Mathematics*

Stephen Baron, Ph.D., *Assistant Professor of Mathematics*

Robert W. Kilmoyer, Jr., Ph.D., *Assistant Professor of Mathematics*

Stanley J. Poreda, Jr., Ph.D., *Assistant Professor of Mathematics*

Herb Silverman, Ph.D., *Assistant Professor of Mathematics*

George S. Shapiro, A.M., *Instructor in Mathematics*

## UNDERGRADUATE PROGRAM

The Department offers courses leading to a major in mathematics, courses necessary for the study of physical and certain social sciences, and courses for the student wishing to learn the fundamental concepts of mathematics.

The mathematics major requires five year-courses in mathematics, excluding Mathematics 11, and including one year-course on the 200 level. In addition, two year-courses must be taken in one of the following areas: biology, chemistry, computer science, economics, geography, geology, philosophy, physics, psychology, sociology. A student interested in majoring in mathematics should normally take Mathematics 12 in the freshman year (or have advanced placement) and Mathematics 13 and 113a in the sophomore year.

In the junior and senior years, a student interested in pure mathematics is encouraged to take Mathematics 214 and 215, and other elective courses. A student interested in applied mathematics should, in his junior and senior years, take courses from the following areas: Applied Mathematics, Differential Equations, Probability and Statistics, Computers and Programming, and additional elective courses.

The department encourages all majors in the department to seek continuous advice from the chairman and faculty with regard to their mathematics program.

Students showing particular promise in mathematics in their first two years are encouraged to enroll in the Honors program in Mathematics during their junior and senior years under the supervision of a faculty member.

At least 36 semester hours of a major's program must be selected from other than the following fields or courses: all Group A courses, and certain courses in computer science, economics, geography, and psychology which depend heavily on mathematics. In each case, please consult with the department.

The course in Numerical Analysis includes work with the computer.

## GRADUATE PROGRAM

The department offers courses leading to the degrees of Master of Arts and Doctor of Philosophy.

The requirements for the M.A.\* are as follows: (1) four courses on the 300 level, except that, with the consent of the department, a student may substitute two courses below the 300 level in place of one beyond; (2) a Master's thesis; and (3) an oral examination.

A student working toward the Ph.D. degree and electing to omit the M.A. thesis and M.A. oral examination will be recommended for the M.A. degree upon successful completion of the Ph.D. Preliminary Examination.

The requirements for the Ph.D.\*, in addition to the general requirements of the Graduate School, are as follows: There are four "tracks" by which a student may be recommended for admission to Ph.D. candidacy: (1) Written examination; (2) Oral examination; (3) Special project; (4) Waiver (in extraordinary cases). The decision as to which track shall apply is made by the advisor in consultation with the student. The advisor will submit the choice of track to the department for final approval.

In all cases except the waiver, a committee of at least three will be appointed by the chairman. If the examination or project is satisfactory, the committee will advise the department, which will make the recommendation to the Graduate School.

The language requirement will be considered to have been fulfilled if the candidate can demonstrate sufficient linguistic ability to carry on effective research in his field. The department's decision will depend heavily upon the recommendation of the candidate's advisor.

\*All Candidates for the M.A. and Ph.D. degrees in Mathematics will be required to serve as teaching assistants or as assistants in the Computing Center as part of the work for their degrees.

## COURSES

### 11a. INTRODUCTION TO MATHEMATICS.

Intended for the general student, the course treats topics in the foundations of mathematics and its role in today's world.

*Four semester hours.*

Mr. Kennison.

### 10b. PRE-CALCULUS.

College algebra, trigonometry, and other basic topics are reviewed thoroughly.

*From one to four semester hours.*

Staff.

### 12. CALCULUS.

Introduction to differential and integral calculus of one variable; sequences and series; essential for further study in mathematics as well as for the study of applications in the natural and social sciences.

*Four semester hours each semester.*

Staff.

### 13. INTERMEDIATE CALCULUS.

This course assumes the knowledge of one variable calculus and will deal with functions of several variables. Partial derivatives, multiple integrals, line and surface integrals and their applications will be among the topics covered. Prerequisite: Mathematics 12.

*Four semester hours each semester.*

Mr. Poreda.

## 150 MATHEMATICS

### 14a. CALCULUS SELF-TAUGHT.

A course designed primarily for freshmen with a good background who want to review elementary calculus while taking intermediate calculus. Students interested in learning relevant parts of calculus for their own disciplines may also find this course useful. Corequisite: Mathematics 13

*One semester hour.*

Staff.

### 100. UNDERGRADUATE SEMINAR IN MATHEMATICAL MODELS.

Not offered, 1971-72.

This is a seminar type course in which elementary examples of mathematical models are examined. Each student presents a model based on his own mathematical interpretation of any social, political, game-type or other situation. Means of applying mathematical games and models to the social and physical sciences are discussed. Knowledge of Set Theory desirable. Signature required. Not normally open to freshmen.

*Two semester hours.*

Mr. Kennison.

### 113a.

Systems of linear equations, matrices and determinants, vector spaces, linear transformations, eigenvalues and canonical forms.

*Four semester hours.*

Mrs. Srinivasan.

### 115b.

An introduction to fundamental concepts such as sets, mappings, equivalence relations, rings, integral domains, fields, and groups.

*Four semester hours.*

Mrs. Srinivasan.

### 117a. INTRODUCTION TO MATHEMATICAL STATISTICS.

Elementary probability theory, mathematical models, frequency distributions, and sampling theory will be covered. An attempt will be made to apply statistics to the social and natural sciences as well as to any other needs of the class. Prerequisite: Mathematics 12 or consent of instructor.

*Four semester hours.*

Mr. Silverman.

### 118b. INTRODUCTION TO PROBABILITY THEORY.

A course developing the foundations of probability. Combinatorial analysis, random walks, recurrent events, markov chains, and their applications will be covered. Prerequisite: Mathematics 12.

*Four semester hours.*

Mr. Silverman.

### 124a. THEORY OF NUMBERS AND THE NUMBER SYSTEM OF MATHEMATICS.

A study of some properties of divisibility, prime numbers, congruences and residues. Development of natural numbers, rational numbers, real numbers and complex numbers. Non-math majors are encouraged to take this course. Prerequisite: Equivalent of Mathematics 11.

*Three semester hours.*

Mr. Baron.

### 125b. INTRODUCTION TO GEOMETRY.

Topics from projective geometry, non-Euclidean geometry, foundations of Euclidean geometry and topology. Prerequisite: Equivalent of Mathematics 11.

*Three semester hours.*

Mr. Baron.

**140a. INTRODUCTION TO MATHEMATICAL LOGIC.**

A course designed to show the student how to construct a formal system and proofs within it. Topics to be covered include propositional and predicate calculus.

*Four semester hours.*

Staff.

**153a. ACTUARIAL SCIENCE.**

This course will deal with the mathematics of finance and its application. Interest, annuities, valuations, depreciation, mortality tables and life insurance are among the areas that will be covered.

Prerequisite: Mathematics 11 or the equivalent.

*Three semester hours.*

Mr. Poreda.

**154b. INTRODUCTION TO LINEAR PROGRAMMING AND GAME THEORY.**

An introductory course developing the basic mathematical tools of linear programming and game theory and investigating their applications to business, science and the military. Computer application will also

Prerequisite: Mathematics 113a.

*Four semester hours.*

Mr. Poreda.

**212a. NUMERICAL ANALYSIS.**

Calculus of finite differences, introduction to the theory of interpolation, error analysis, direct and iterative methods for solving equations and systems of equations. Prerequisite: Mathematics 13.

*Four semester hours.*

Mr. Stubbe.

**214. MODERN ANALYSIS.**

Topological, metric and linear methods are studied and used as a basis for a general approach to differentiation, integration and related topics in analysis. Prerequisites: Mathematics 114 or consent of the instructor.

*Four semester hours each semester.*

Mr. Baron.

**215. MODERN ALGEBRA.**

Introduction to the theory of groups, rings, integral domain, fields, and related topics. Prerequisite: Mathematics 113 or consent of the instructor.

*Four semester hours each semester.*

Mr. Kilmoyer.

**221b. CALCULUS OF VARIATIONS.**

Euler's equations, canonical forms, classical examples, isoparametric problems, variational principles, Hamilton-Jacobi theory. Corequisite: Mathematics 13.

*Four semester hours.*

Mr. Stubbe.

**244a. DIFFERENTIAL EQUATIONS.**

Topics will include methods of solution and qualitative theory of first order and linear ordinary differential equations. Prerequisite: Mathematics 113a.

*Four semester hours.*

Mr. Shapiro.

**245b. APPLIED MATHEMATICS.**

More techniques relating to differential equations such as Laplace transforms and Fourier series. Single theory of certain partial differential equations. If time permits, numerical methods will be discussed.

Prerequisite: Mathematics 244a.

*Four semester hours.*

Mr. Shapiro.



## 152 MATHEMATICS

### 290. TOPICS IN ANALYSIS.

Content will be changed from year to year.

*Four semester hours each semester.*

Staff.

### 291. TOPICS IN ALGEBRA.

Content will be changed from year to year.

*Four semester hours each semester.*

Staff.

### 292. TOPICS IN TOPOLOGY

Content will be changed from year to year.

*Four semester hours each semester.*

Staff.

### 298. HONORS I.

*Four semester hours each semester.*

Staff.

### 299. HONORS II.

*Four semester hours each semester.*

Staff.

### 300b. SETS AND TOPOLOGY.

The foundations of set theory and the relationship of various fundamental axioms, such as Zorn's lemma and the Axiom of Choice. Point-set topology as far as the Hahn-Mazurkiewicz Theorem.

*Four semester hours each semester.*

Mr. Shapiro.

### 316. FUNCTIONS OF A COMPLEX VARIABLE.

Analytic functions, line integrals, conformal mapping. Riemann surfaces. Prerequisite: Mathematics 214 or consent of the instructor. Offered in alternate years.

*Four semester hours each semester.*

Mr. Silverman.

### 318. FUNCTIONS OF A REAL VARIABLE.

Foundations of the real number system, algebra of sets, transfinite arithmetic, metric spaces, topological spaces, sequences and series, measure theory, differentiation and integration and introduction to category theory. Prerequisite: Mathematics 214; corequisite: Mathematics 300.

*Four semester hours each semester.*

Mr. Rubinstein.

### 321. ALGEBRAIC TOPOLOGY.

Not offered, 1971-72.

Introduction to algebraic topology including fibrations and coverings, homotopy and homology. The relation with category theory will be emphasized. Prerequisites: Mathematics 215 and 318 or consent of the instructor.

*Four semester hours each semester.*

Mr. Baron.

### 323. UNIFORM SPACES.

Not offered, 1971-72.

Elementary theory, function spaces and the exponential law, mappings into polyhedra, compactifications, fine spaces, dimension theory. Prerequisite: Mathematics 318 or consent of the instructor.

*Four semester hours each semester.*

325. ADVANCED MODERN ALGEBRA.

Galois theory, group theory, Wedderburn structure theorems for rings and linear algebras, introduction to algebraic number fields. Prerequisite: Mathematics 215; corequisite: Mathematics 300.

*Four semester hours each semester.*

Mrs. Srinivasan.

326. SELECTED TOPICS IN COMPLEX ANALYSIS.

Not offered, 1971-72.

Topics selected from the theory of univalent and multivalent functions, geometric function theory, zeros of polynomials and extremal polynomials. Prerequisites: Mathematics 316 or consent of the instructor.

*Four semester hours.*

330. MASTER'S THESIS.

Staff.

333. TOPOLOGICAL FUNCTION SPACES.

Not offered, 1971-72.

Various topologies for sets of functions are studied and their properties determined. Emphasis on the exponential laws. Ascoli-Arzelà theorems, and applications to point-set topology. Prerequisites: Mathematics 318 or consent of the instructor.

*Four semester hours each semester.*

335. SELECTED TOPICS IN ALGEBRA.

Not offered, 1971-72.

Prerequisites: Mathematics 325 or consent of the instructor.

*Four semester hours.*

341. DIFFERENTIAL EQUATIONS.

Not offered, 1971-72.

Ordinary differential equations, theory and techniques of solutions. Partial differential equations. Fourier transform, distributions and their applications.

*Four semester hours each semester.*

Mr. Rubinstein.

358. CATEGORY THEORY.

Not offered, 1971-72.

*Four semester hours each semester.*

Mr. Baron.

376. REPRESENTATION THEORY OF FINITE GROUPS.

Prerequisite: Mathematics 325 and consent of the instructor.

*Four semester hours each semester.*

Mr. Kilmoier.

381. SEMINAR IN COMPLEX VARIABLE.

*Four semester hours each semester.*

Staff.

382a. SEMINAR IN ABSTRACT ANALYSIS.

*Four semester hours each semester.*

Mr. Shapiro.

383. SEMINAR IN ALGEBRA.

*Four semester hours each semester.*

Staff.

384. SEMINAR IN CATEGORY THEORY.

*Four semester hours each semester.*

Staff.

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### 390. READINGS IN MATHEMATICS.

Reading of the mathematical literature related to the student's research program.

*Four semester hours each semester.*

Staff.

### 391. RESEARCH IN MATHEMATICS.

Direction of the Ph.D. dissertation.

*Three semester hours each semester.*

Staff.

# Music

## DEPARTMENT FACULTY

Relly Raffman, A.M., *George N. and Selma U. Jeppson, Professor of Music,*  
*Department Chairman*

Wesley M. Fuller, M.Mu., *Associate Professor of Music*

Gerald R. Castonguay, A.M., M.Mu., *Assistant Professor of Music*

Susan Clickner, B.Mu., *Affiliate in Voice*

Evelyn Fuller, M.Mu., *Affiliate in Piano*

Raymond Toubman, M.Mu., *Affiliate in Oboe*

## UNDERGRADUATE PROGRAM

The department offers courses designed to teach students how to listen to music intelligently, to develop a comprehension of music on its own terms and to acquaint students with representative works from various periods of music history.

To be admitted to the music major, a student must demonstrate through a written examination a knowledge of the fundamentals of music, and he must demonstrate no later than the beginning of the junior year the ability to read and perform simple keyboard works.

The music major includes the following courses:

Theory: 121a and b (to be taken in the Freshman year). 122a, 123b, 124a and 125b.

Music History: 12a and 112a; 13b and 113b; 14a and 114a; 15b and 115b.

In the senior year, students who wish to emphasize composition should elect Music 118; students who wish to emphasize music history should elect Music 128. An emphasis in an instrumental area or voice may be arranged as a substitute for 118 or 128. Interested students should consult the department chairman no later than the beginning of the sophomore year. In addition, all majors must satisfactorily complete 36 semester hours outside of Philosophy 13b (Esthetics), courses in fine arts, courses in literature and courses in European history.

Individual instruction in flute, guitar, oboe, organ, piano, violin and voice will be arranged if the demand in any area is sufficient. Payment for lessons is made by the semester:

\$75.00 for half-hour lesson per week.

\$150.00 for hour lesson per week.

Arrangements for lessons should be made with the Music Department office at the time of registration. Practice rooms are available without charge.

## COURSES

### 10a. INTRODUCTION TO MUSIC.

Designed for the non-major, this course is a prerequisite for entrance into all Music History or Survey Courses. No credit towards the major allowed. Open to freshmen. Repeated second semester.

*Four semester hours.*

Staff.

**11a. SURVEY OF MUSICAL STYLE.**

Designed for the non-major, the survey deals with the study of selected works of the major periods in Western Music from the early chant to the present. Prerequisite: 10a.

*Four semester hours.*

Staff.

**112a. SPECIAL TOPICS IN MEDIEVAL AND RENAISSANCE MUSIC.**

Not offered, 1971-72.

Independent study. Required of all music majors, but open to anyone concurrently enrolled in 12a.

*One semester hour.*

Staff.

**113b. SPECIAL TOPICS IN BAROQUE AND CLASSICAL MUSIC.**

Not offered, 1971-72.

Independent study. Required of all Music Majors, but open to anyone concurrently enrolled in 13b.

*One semester hour.*

Staff.

**12a. MEDIEVAL AND RENAISSANCE PERIODS.**

Not offered, 1971-72.

A survey of music before 1600. Prerequisite: 10a or 121a. Offered in alternate years.

*Three semester hours.*

Mr. Castonguay.

**121a. FUNDAMENTALS OF MUSIC.**

Notation, ear-training, sight-singing and elementary melodic and harmonic organization.

*Four semester hours.*

Mr. Raffman.

**121b. PRIMARY THEORY.**

Open to freshmen. Prerequisite: 121a or consent of instructor.

*Four semester hours.*

Mr. Raffman.

**13b. BAROQUE AND CLASSICAL PERIODS.**

Not offered, 1971-72.

A survey of music from 1600 to 1800. Offered in alternate years. Prerequisite: 10a or 121a.

*Three semester hours.*

Mr. Castonguay.

**122a. THEORY: MODAL COUNTERPOINT.**

Not offered, 1971-72.

Offered in alternate years. Prerequisite: 121a.

*Four semester hours.*

Mr. Fuller.

**123b. THEORY: 18th-CENTURY COUNTERPOINT.**

Not offered, 1971-72.

Prerequisite: 121a. Offered in alternate years.

*Four semester hours.*

Mr. Raffman.

**14a. NINETEENTH-CENTURY MUSIC.**

A survey of the Romantic period. Offered in alternate years. Prerequisite: 10a or 121a.

*Three semester hours.*

Mr. Castonguay.

**114a. SPECIAL TOPICS IN 19th-CENTURY MUSIC.**

Independent study. Required of all Music Majors, but open to anyone concurrently enrolled in 14a.

*One semester hour.*

Staff.

**124a. THEORY: 19th-CENTURY PRACTICE.**

Prerequisite: 121a. Offered in alternate years.

*Four semester hours.*

Mr. Raffman.



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### 15b. TWENTIETH-CENTURY MUSIC.

A survey of early 20th-century masterworks. Representative composers: Debussy, Ravel, Prokofiev, Stravinsky, Bartok, Hindemith, Schoenberg, Berg and Webern. Offered in alternate years. Prerequisite: 10a or 121a.

*Three Semester hours.*

Mr. Raffman and Mr. Fuller.

### 115b. SPECIAL TOPICS IN 20TH-CENTURY MUSIC.

Independent study. Required of all music majors, but open to anyone concurrently enrolled in 15b.

*One semester hour each semester.*

Staff.

### 125b. THEORY: 20TH-CENTURY PRACTICE.

Prerequisite: 121a and 124a. Offered in alternate years.

*Four semester hours.*

Mr. Raffman and Mr. Fuller.

### 16b. CHAMBER MUSIC.

A survey of selected works of the major composers in the field of chamber music from Haydn to Stravinsky. Trips to concerts in the surrounding area will be made whenever feasible. Offered in alternate years. Prerequisite: 10a or 121a.

*Three semester hours.*

Mr. Castonguay.

### 17b. OPERA.

With the help of translated librettos, recordings and selected readings, a study is made of a group of operas representing all periods of music history, with emphasis on the many solutions to the combination of music and drama. Prerequisite: 10a or 121a. Offered in alternate years.

*Three semester hours.*

Mr. Fuller.

### 18. PRIVATE INSTRUCTION IN INSTRUMENTS AND VOICE.

Academic credit of from one to three points may be arranged for students majoring in music according to the particular program of instruction undertaken. Non-majors may register for one point credit per year (half-hour lesson per week); prerequisite for credit: simultaneous or previous enrollment in Music 121a. Offered in 1971-72: flute, guitar, oboe, organ, piano, violin and voice. Arrangements for lessons must be made through the Music Department office at the time of registration.

Staff.

### 19a. INTRODUCTION TO NON-WESTERN MUSIC.

Music of Cultures not of the Western European tradition are studied. Specific countries considered will vary, but music of India, Japan, Africa, and China are among those included. Offered in alternate years. Prerequisite: 10a or 121a. For consortium: a music history or theory course.

*Three semester hours.*

Mr. Fuller.

### 19b. MUSIC OF THE AVANT GARDE.

Not offered, 1971-72.

Innovations and developments of the earlier years of the 20th-century are examined in the works of the recent past: extended serial techniques, aleatory, electronic and computer music, neo-dadaism and multi-media. Offered in alternate years. Prerequisite: 15b.

*Three semester hours.*

Mr. Fuller and Mr. Raffman.

### 119b. SPECIAL TOPICS: ELECTRONICS MUSIC (STUDIO)

Not offered, 1971-72.

Concurrent registration in 19b required. Prerequisite: permission of the instructor. Offered in alternate years.

*One semester hour.*

Mr. Fuller and Mr. Raffman.

### 118. SENIOR TUTORIAL IN MUSIC HISTORY.

*Four semester hours each semester.*

Staff.

**120a. JAZZ.**

Not offered, 1971-72.

The course is divided into two 2-semester hour units: 1) The History of Jazz. Prerequisite: 10a or 121a; 2) Jazz Workshop. Prerequisite: 121a or permission of instructor. Those entering the workshop must also register in the survey and are expected to have had practical experience in jazz performance. Offered in alternate years.

*Four semester hours. (2 + 2).*

Mr. Raffman.

**128. SENIOR TUTORIAL IN COMPOSITION.**

*Four semester hours each semester.*

Staff.

# Philosophy

**DEPARTMENT FACULTY**

Robert N. Beck, Ph.D., *Professor of Philosophy, Chairman*

Jefferson White, Ph.D., *Associate Professor of Philosophy*

Gilbert S. Markle, Ph.D., *Assistant Professor of Philosophy\**

Gary E. Overvold, Ph.D., *Assistant Professor of Philosophy*

Walter E. Wright, Ph.D., *Assistant Professor of Philosophy*

*\*On leave of absence, second semester, 1971-72.*

**UNDERGRADUATE PROGRAM**

The department offers courses to students who wish to broaden their perspective and trace relations among the various fields of knowledge and to students who wish to major in philosophy.

The major consists of at least 28 semester hours in philosophy which should include either Phil. 11b or Phil. 18b, two courses from the Phil. 120 series, and a seminar. An additional 20 hours in related fields is required. These are determined according to the student's special interest. Course programs for majors require approval of the departmental chairman.

The outside field requirement in philosophy of 36 semester hours requires specific course determination. Courses credited toward this requirement must be individually approved by the departmental chairman as part of the major's program.

It is expected that majors take at least their upper-level courses in philosophy on a graded basis.

**COURSES****11b. INTRODUCTION TO LOGIC.**

Logic as philosophy and practice. An introduction to the meaning of logical reasoning with a study of its principles and methods. An investigation of the philosophical presuppositions of logic.

*Four semester hours.*

Mr. Beck, Mr. Overvold.

**12a. PROBLEMS OF PHILOSOPHY.**

Nature and method of philosophy. Application of philosophical method to contemporary personal and social problems. Detailed analysis of some typical problems in various fields of philosophy.

*Four semester hours.*

Mr. Markle.

**12b. PROBLEMS OF PHILOSOPHY.**

Not offered, 1971-72.

Mr. Beck.

Philosophy 120 series is organized in four semester-courses, I, II, III and IV.

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### 121a. HISTORY OF ANCIENT PHILOSOPHY I.

Movements of philosophical thought from their origins with the early Greeks through Plato and Aristotle. Prerequisite: one semester course in philosophy.

*Four semester hours.*

Mr. White.

### 122b. HELLENISTIC AND MEDIEVAL PHILOSOPHY II.

Not offered, 1971-72.

Developments in Hellenistic and medieval philosophy from Epicureanism, Stoicism, Skepticism, and Neo-Platonism through Augustine, Aquinas, and William of Occam to the attack on scholasticism. Prerequisite: Philosophy 121 or 12.

*Four semester hours.*

Mr. White

### 123b. HISTORY OF MODERN PHILOSOPHY III.

Major thinkers and philosophical movements from the beginnings of the modern period in Descartes through Kant. The two great trends in modern thought – Continental Rationalism and British Empiricism – will be examined in particular regard to their implications for, and effects upon, our contemporary view of the world. Prerequisite: one semester course in philosophy or History 10.

*Four semester hours.*

Mr. Markle.

### 124a. HISTORY OF RECENT PHILOSOPHY IV.

An investigation of the major types of philosophical thought distinctive to recent philosophy: Pragmatism, Logical Positivism, Ordinary Language Philosophy, Existentialism, and Phenomenology. Emphasis upon each as a coherent perspective upon experience with a focus on the style and methodology of each view. Prerequisite: Philosophy 123b.

*Four semester hours.*

Mr. Overvold.

### 13a. PROBLEMS OF ETHICS.

Not offered, 1971-72.

Consideration of important ethical theories to acquaint students with the problems and scope of ethics and to aid him in the formulation of an ethical outlook. Open to juniors and seniors.

*Four semester hours.*

Mr. Beck.

### 13b. SOCIAL PHILOSOPHY.

Principles underlying social structure and functions. Examination of the goals, purposes, norms and ideals of social process, and the relation of that process to the individual good. Open to juniors and seniors.

*Four semester hours.*

Mr. Beck.

### 131a. PERSONAL VALUES.

Exploration of philosophical approaches to the fundamental human value problems such as truthfulness, sexual integrity, love, violence, war, and death. The connection between personal value choices and ethical theories will be studied. (In particular naturalism as an ethical theory will be carefully examined.) Limited course, preference to freshmen.

*Four semester hours.*

Mr. Wright.

### 14a. KIERKEGAARD AND NIETZSCHE.

Not offered, 1971-72.

Investigation of the roots of contemporary existential thought in the nineteenth century through the analysis of major writings by Søren Kierkegaard and Friedrich Nietzsche. Emphasis on their doctrines of knowledge, existence and man. Open to juniors and seniors. Prerequisite: one semester course in philosophy.

*Four semester hours.*

Mr. Overvold, Mr. Wright.

**14b. NINETEENTH AND EARLY TWENTIETH-CENTURY GERMAN PHILOSOPHY.**

Trends in philosophy during this period considered as a background for understanding recent philosophy. Philosophers to be studied include Fichte, Hegel, Schopenhauer, Nietzsche, Marx, Engels and Comte. Prerequisite: Philosophy 123b.

*Four semester hours*

Mr. Wright.

**140a. KANT.**

Immanuel Kant viewed as a synthesis of the traditions of Continental Rationalism and British Empiricism. Prerequisite: two semester courses in philosophy, including Philosophy 123b.

*Four semester hours.*

Mr. Markle.

**15a. PHILOSOPHY OF RELIGION.**

The nature of religion as revealed by the examination of representative forms of religious experience. Emphasis is placed on the effect of contemporary knowledge on the understanding of the religious dimension. Open to juniors and seniors. Prerequisite: one semester course in philosophy.

*Four semester hours.*

Mr. Wright.

**16a. ESTHETICS.**

The nature of art, the characteristics of esthetic experience, and the relation of art to the human enterprise as a whole. Special reference is made to representative figures in contemporary philosophy such as Santayana, Veron, Dewey, Weitz, Macdonald, Bosanquet, Langer, Hume, and T.H. Greene. Open to juniors and seniors. Prerequisite: one semester course in philosophy.

*Four semester hours.*

Mr. White.

**16b. METAPHYSICS.**

Clarification of the nature of metaphysical thinking and views of representative philosophers on the nature of space, time, causality, matter, force, self-identity, mind, body, and freedom. Prerequisite: two semester courses in philosophy.

*Four semester hours.*

Mr. Overvold.

**161b. THEORY OF VALUE.**

Definitions of "value"; psychological and social conditions of different values; function of value judgments; nature of standards and their role in criticism — in art, science, morals. Foundations of the normative disciplines, i.e., logic, ethics, aesthetics. Prerequisite: two semester courses in philosophy including a course in one of the following areas: logic, ethics or esthetics.

*Four semester hours.*

Mr. White.

**17. PHILOSOPHY OF SCIENCE I.**

An introduction to certain traditional problems of epistemology and metaphysics, cast into the terms and context of 20th-century science. The questionable "ontological status" of theories is the principal point of focus. Prerequisite: semester course in philosophy.

*Four semester hours.*

Mr. Markle.

**17b. PHILOSOPHY OF SCIENCE II.**

Not offered, 1971-72.

A more advanced treatment of selected problems in scientific explanation. One such problem is that of "artificial intelligence" in machines. Does the traditional problem of mind and body become any less



## 160 PHILOSOPHY

onerous when viewed within the developing context of Cybernetics and information theory? Some symbolic logic is required. Prerequisite: two semester courses in *both* philosophy and a natural science. Philosophy 17 recommended.

*Four semester hours.*

Mr. Markle.

### 18. HISTORY OF AMERICAN PHILOSOPHY.

Survey of important philosophical ideas in America with emphasis on their relationship to American experience. Prerequisite: one semester course in philosophy.

*Four semester hours.*

Mr. Beck.

### 18b. SYMBOLIC LOGIC.

Advanced work in symbolic logic, with stress on principles of deductive rigor. Some consideration of philosophical implications of logic. Topics to be discussed include: sentential calculus, predicate calculus, Tarski's definition of truth, selected metatheorems, and Henkin's completeness proof for the first order predicate calculus. Prerequisite: permission of instructor.

*Four semester hours.*

Mr. Wright.

### 19a. EPISTEMOLOGY.

Not offered 1971-72.

Survey of the major topics in theory of knowledge, including study of significant alternative positions. Prerequisite: two semester courses in philosophy.

*Four semester hours.*

Mr. Overvold.

### 19b. EXISTENTIALISM.

A study of the major philosophers in twentieth-century Existentialism with a focus on their redefinition of man in terms of his "lived world" and his nonrational capacities. Prerequisite: two semester courses in philosophy.

*Four semester hours.*

Mr. Overvold.

### 201-4 SEMINARS IN PHILOSOPHY.

Advanced studies of topics of central importance to philosophy, such as the philosophy of Whitehead, Spinoza, Plato, Hegel, the nature of the *a priori*, the problem of justice, the nature of truth, phenomenology, the philosophy of mind, the philosophy of law. Offerings vary each semester. Prerequisite: four semester courses in philosophy or permission of instructor.

*Four semester hours each semester.*

Staff.

### Education 290b. PHILOSOPHY OF EDUCATION.

Description offered in the department statement under Education.

Mr. Beck.

## Research in Philosophy

### 99. READINGS IN PHILOSOPHY.

Group discussion, individual tutorials and independent research in areas of philosophy. The independent research involves a topic of the student's choice within the designated area. Prerequisite: where appropriate, completion of regular department course in the area; two semester courses in philosophy; and instructor's permission. Offerings vary each semester.

*Normally, four semester hours.*

Staff.

Fall Semester, 1971-72

Analytic Philosophy  
Existentialism  
Philosophy of Science  
Ancient Philosophy  
Medieval Philosophy

Spring Semester, 1971-72

To be announced.

203a. SURSEMINAR: TEACHING IN PHILOSOPHY.

Prerequisite: permission of instructor.

*Four semester hours.*

Mr. Markle.

101-Ib. SURSEMINAR: RESEARCH AND WRITING  
IN PHILOSOPHY.

Offered the first half of second semester.

Prerequisite: permission of instructor.

*Two semester hours.*

Mr. Beck.

101-IIb. SURSEMINAR: PHILOSOPHICAL JOURNALS.

Offered the second

Prerequisite: permission of instructor.

half of second semester.

*Two semester hours.*

Mr. Beck.

102a. SURSEMINAR: READINGS IN PHILOSOPHY IN GERMAN.

Selected texts in German philosophy studied in the original language. Prerequisite: permission of instructor.

*Normally, three semester hours.*

Mr. Wright.

299. HONORS IN PHILOSOPHY.

Advanced individual study of philosophic problems. Honors includes the preparation of an acceptable thesis and a comprehensive examination. Prerequisite: consent of the department.

*Normally, eight semester hours.*

Staff.

# Physics

## DEPARTMENT FACULTY

Roy S. Anderson, Ph.D., *Professor of Physics*

John A. Davies, Ph.D., *Associate Professor of Physics*

Harvey A. Gould, Ph.D., *Associate Professor of Physics*

Christoph Hohenemser, Ph.D., *Associate Professor of Physics*

Roger P. Kohin, Ph.D., *Associate Professor of Physics*

Joseph P. McEvoy, Ph.D., *Assistant Professor of Physics*

## UNDERGRADUATE PROGRAM

Through the combination of a sound basic curriculum in physics offered on the Clark University campus and a wide range of special topics courses available at Holy Cross College, the Department of Physics provides a flexible undergraduate physics program which can be adapted to a variety of student interests or needs. Individual programs can be formulated in which physics is developed as an

area of liberal studies, as support for studies in other areas of science, or as preparation for a career in physics or in the teaching of science. In addition, the Department offers two courses and one seminar in physics (Physics 1b, 2a, and 120, respectively) and a course in astronomy (Astronomy 1a) which are intended primarily for the non-science student. These courses are designed to acquaint the student with the flavor of the process of scientific inquiry and with the impact and role of physics in the contemporary world, and are conducted in such a way as to minimize the mathematical background required of the student.

Students intending to concentrate in physics should select one of the two options: A. *General Physics*, or B. *Physics*, which are available as Physics Major programs. A student in one option may elect, at a later date, to move into the other option. In selecting either of the options the student is urged to consult with a faculty advisor from the department.

The *General Physics* program has been designed to allow students who wish to concentrate in the physical sciences to do so with a maximum of flexibility and a minimum of fixed major requirements. It will provide a background in all areas of physics for those students who wish to formulate a program having a particular interdisciplinary concentration in mind or who want a wide distribution among the liberal arts. It is also suitable for those planning a career requiring a modest background in the physical sciences such as in secondary education, business management, science policy, or the Peace Corps. The *Physics* major, which has a somewhat more structured program, is intended for those students who wish to acquire the necessary background for graduate study in physics or an immediate career in industrial or governmental laboratories. Students intending graduate work in physics are strongly urged to take two years of either German or Russian. Students who entered the University prior to September, 1971 may continue with the Physics major programs described in the appropriate previous catalog. These programs, however, do not differ essentially from one or the other of the above options.

A qualified student in either option is encouraged to participate in the Physics Honors Program. During the junior and senior year the Honors student conducts an individual experimental or theoretical research project under the guidance of a faculty member. This work is submitted to the Department as an Honors Thesis. Recommendation for a degree with Honors in Physics is determined by the quality of the thesis and the performance of the student on a comprehensive examination in physics. An Honors candidate must maintain an overall B- average in physics and mathematics courses. Further information about the Honors Program is available from the Department.

#### UNDERGRADUATE MAJOR OPTIONS AVAILABLE

A. *General Physics*: This program consists of the following requirements: Physics 10, 11, 140, 220, Mathematics 13, one Physics laboratory beyond Physics 11, six semester hours of Physics electives and twelve semester hours of additional electives from science, mathematics and computer science.

B. *Physics*: This program requires Physics 10, 11, 140, 150, 160, 202, 207, 220, Mathematics 13, two semester hours of Physics laboratory beyond Physics 11, and six semester hours of mathematics electives beyond Mathematics 13.

Both programs require in addition at least 36 semester hours in courses outside of Group A.

Of the courses required for a major, all but Physics 150 are taught on the Clark University campus. Physics 150 and a number of special topics courses in physics which may be chosen as electives are taught at Holy Cross College; these courses are listed in this catalog under their Clark University numbers. Shuttle buses run regularly between the Clark and Holy Cross campuses and are free to Clark University students.

## GRADUATE PROGRAM

Graduate programs are offered leading to the degrees of Master of Arts and Doctor of Philosophy. A doctoral program in Chemical Physics, offered jointly with the Department of Chemistry, is also available.

Departmental research is being conducted in both theoretical and experimental solid state physics. Areas of theoretical interest include lattice dynamics, statistical mechanics and critical phenomena. Experimental investigations of radiation damage and of ferroelectricity, superconductivity, and other critical phenomena in solids are carried out by the use of electron spin resonance, ultrasonics, precision magnetic field measurements and related techniques.

Graduate scholarships, teaching and research assistantships, and various research fellowships are available. Information on these awards will be furnished on request to the Department of Physics. First year graduate students may receive teaching assistantships and tuition scholarships. Following the first academic year, graduate students may be awarded twelve-month research assistantships with tuition scholarships. Research conducted while on research assistantships may constitute thesis or dissertation work.

Entering graduate students are required to take the Physics Qualifying Placement Examination, which is designed to test the student's ability to solve problems at the upper-class undergraduate level. One year of teaching apprenticeship, or its equivalent, is required of all candidates for advanced degrees.

In addition to the requirements of the Graduate School, students in the M.A. program are generally responsible for the material covered in Physics 301b, 304, and 305.

Students in the Ph.D. program must satisfy the Ph.D. residence requirements of the Graduate School, namely 54 semester hours of graduate credit, or, for students with the Master's degree, 24 semester hours of graduate credit. The Department of Physics requires that a student in the Ph.D. program must pass, either at Clark University or elsewhere, graduate courses in physics and related fields, credit for which must total at least 54 semester hours, including at least 12 semester hours in mathematics and 6 semester hours in any related field, including mathematics. The maximum credit for research is 12 semester hours. Courses taken to fulfill part of the requirements for a Master's degree may be included in satisfying this departmental requirement. Doctoral students are responsible for the material covered in Physics 301b, 304, and 305.

Students in the doctoral program take the Physics Preliminary Examination no later than the end of the second year of graduate study. This is a comprehensive written and oral examination covering classical and modern physics at the graduate level. To be admitted to candidacy the student must pass an oral examination on a dissertation research proposal presented at a departmental colloquium.

Doctoral students must satisfy the departmental language proficiency requirement. Proficiency must be demonstrated in two languages selected from among French, German or Russian. Languages other than these may be chosen with permission of the Department. Proficiency can be demonstrated by giving the sense of papers in the field of physics which have been published in the chosen language. The language tests are to be administered by the faculty of the Department of Physics and must be passed no later than one year after the presentation of the dissertation proposal.

A detailed description of graduate programs and requirements is available from the Department of Physics. Applicants for admission to graduate study in physics are required to submit scores on the Verbal and Quantitative sections of the Graduate Record Examination and on the GRE Advanced Placement Examination in Physics.



## ASTRONOMY

### UNDERGRADUATE PROGRAM

The Department of Physics offers one course in astronomy at the introductory level. More advanced courses relating to astronomy are listed under courses in physics.

### COURSES IN ASTRONOMY

#### 1a. EXPLORING THE UNIVERSE.

A one-semester introduction specifically designed for the non-science student who wishes to know what science is about, but who does not wish to master the detail found in the typical introductory science survey course. Astronomy is an interdisciplinary field involving physics, mathematics, chemistry, geology, and even philosophy. This semihistorical introduction to astronomy is an example of how scientific ideas and methods developed. The use of mathematics is minimized; the only mathematics employed is at the level of high school algebra. The following topics are discussed: the earth and gravity, the solar system, time and the calendar, atoms, light and the stars, a typical star – our sun, weighing stars and measuring stellar distances, the interstellar medium, stellar evolution, the Milky Way and other galaxies, the structure of the universe, the origin of the universe and the origin of life. Classroom demonstration experiments, actual telescope observations and field trips to nearby observatories and planetariums are a part of the course. Three lectures and one recitation session per week, and occasional observation sessions. Open to freshmen.

*Four semester hours.*

Mr. Anderson.

### COURSES IN PHYSICS

#### 1b. PHYSICS FOR ARTISTS, POETS AND POLITICIANS.

Designed for non-majors, this course reviews in an historical context the important discoveries and theories on the nature of light and matter. Making use of original resource material whenever possible, class meetings and laboratory exercises in the first half of the semester are organized around classic experiments on the refraction, dispersion and diffraction of light. Snell's Law is analyzed from the corpuscular (Descartes, Newton) and the undulatory (Hooke, Huygens) viewpoint providing the basis for the "experimentum crucis" of Foucault in 1872. The "luminiferous ether" provides the link to 20th-century physics through a detailed study of the Michelson – Morley experiment. The work of Albert Einstein in 1905 introduces special relativity and revives the wave-particle duality. The second half of the semester begins with the discoveries of x-rays and radioactivity. Original papers on the electron, neutron and the positron are highlighted. The Copenhagen interpretation of quantum mechanics (Bohr, Heisenberg) is presented as a *possible* view of the microscopic world by contrast with the objections of Einstein and Schrödinger. Fundamental studies of the nucleus by Fermi and others are viewed in the backdrop of the rise of Fascism in Europe during the 1930s. The origins of the Manhattan Project are traced through the activities of Leo Szilard and the myth of the German atomic bomb. The end of this era in the history of physics is described in the mushroom cloud over Hiroshima and in the courtroom of the Oppenheimer – AEC Security Trial. Three class meetings and one laboratory per week. Open to freshmen.

*Four semester hours.*

Mr. McEvoy.

#### 2a. PHYSICS OF SEEING AND HEARING.

This course has as its central theme the question of the appearance of the physical world. Designed specifically for the liberal arts student, only a working knowledge of algebra and trigonometry is prerequisite. The pedagogy seeks to develop in the student the ability to discover the "how" and

"why" of a wide variety of audio and visual phenomena. No apologies are made for investigating scientifically the sound of a flute or the color of a sunset, events usually judged in aesthetic terms. Plans include the detailed study of the operation of actual equipment (cameras, recorders, etc.) used in the field work. Topics also include the nature of sound and light, physics of the eye and ear, optical illusions, theory of color, physics of musical instruments and photography. Three class meetings and one two-hour laboratory per week. Limited to 50 students. Open to freshmen.

*Four semester hours.*

Mr. McEvoy.

#### 10. GENERAL PHYSICS LABORATORY.

Elementary laboratory experiments in physics, techniques of measurement and technical report writing. One meeting per week throughout the year. Corequisite: Physics 11.

*One semester hour each semester.*

Mr. Kohin.

#### 11. GENERAL PHYSICS.

A survey course designed for science majors. Emphasis will be on physical principles, with applications chosen from the areas of mechanics, electricity and magnetism, optics, heat and atomic, nuclear and particle physics. Three lectures, one problem session and one laboratory period per week. Corequisite: Mathematics 12. Open to Freshmen.

*Four semester hours each semester.*

Mr. Kohin.

#### 120. UNDERGRADUATE SEMINAR.

Intimate discussions of problems of contemporary interest in physics conducted by faculty and students and occasionally by outside lecturers. May be taken for credit repeatedly. One meeting per week through the year. Offered on a pass/no record basis only. Open to freshmen.

*One semester hour each semester.*

#### 130a. ELECTRICITY AND MAGNETISM.

Phenomenological development of Maxwell's equations. The formalism of electrostatics. Potentials and fields around conductors. The divergence and curl of a vector field. A microscopic picture of electric current as charge transport by ions. Magnetic forces as a consequence of the relativistic invariance of charge. Electromagnetic induction and Maxwell's equations. Basic theory of a-c circuits. Three lectures per week. Prerequisite: Physics 12b with Mathematics 13 concurrently. Not offered after 1971-72.

*Four semester hours.*

#### 135a. ELECTRICITY AND MAGNETISM LABORATORY.

Electrical and magnetic measurements. Exploration of electrical and magnetic phenomena. One laboratory per week. Corequisite: Physics 130a. Not offered after 1971-72.

*One semester hour.*

#### 140b. MODERN PHYSICS.

Not offered, 1971-72.

A survey course treating contemporary ideas. An introduction to the quantum theory with applications to atoms, nuclei, particles, and the solid state. Three lectures per week. Prerequisite: Physics 11. Offered in alternate years. Physics 25 at Holy Cross College may be substituted for this course.

*Three semester hours.*

Staff.

#### 145b. MODERN PHYSICS LABORATORY.

Not offered, 1971-72.

Experiments in modern physics. One laboratory per week. Corequisite: Physics 140b. Offered in alternate years. Physics 111 at Holy Cross College may be substituted for this course.

*One semester hour.*

Staff.

## 166 PHYSICS

### 150b. THEORETICAL MECHANICS.

Newton's laws of motion, three-dimensional kinematics and dynamics, central force motion, motion of a system of particles, generalized coordinates, constraints, Lagrangian and Hamiltonian dynamics, rigid body dynamics, inertia and stress tensors. Three lectures per week. Prerequisite: Physics 11. This course is the same as Physics 120 at Holy Cross College and is taught on the Holy Cross campus.

*Three semester hours.*

### 160a. ELECTROMAGNETISM.

Not offered, 1971-72.

A development of the formal structure of electromagnetic theory, as embodied in Maxwell's field equations, and a detailed examination of electromagnetic energy, wave propagation and special relativity. Particular applications include waveguides, optics and simple radiating systems. Vector differential and integral calculus is reviewed and utilized throughout the course. Expansion in orthogonal functions is one of several problem-solving techniques learned through extensive application. Three lectures and one problem session per week. Prerequisite: Physics 11 and consent of the instructor. Offered in alternate years. Physics 130 at Holy Cross College may be substituted for this course.

*Four semester hours.*

Staff.

### 170b. OPTICS.

"Optics" as used in this course covers the electromagnetic spectrum from the ultraviolet through the visible and infrared to the microwave region. Topics treated include geometrical optics; physical optics: interference, diffraction, polarization; and the fundamental principles involved in the generation of radiation in this spectral band. Three lectures per week. Prerequisite: Physics 11. This course is the same as Physics 115 at Holy Cross College and is taught on the Holy Cross campus.

*Three semester hours.*

### 175b. OPTICS LABORATORY.

Corequisite: Physics 170b. The laboratory must be taken as a fifth course. This course is the same as Physics 116 at Holy Cross College and is taught on the Holy Cross campus.

*Three semester hours.*

### 202a. THERMODYNAMICS AND STATISTICS.

Not offered, 1971-72.

The laws of thermodynamics. Kinetic theory and particle statistics. Four lectures per week. Prerequisite: Mathematics 13 and Physics 140b. Offered in alternate years. Physics 159 at Holy Cross College may be substituted for this course.

*Four semester hours.*

Staff.

### 205b. ELECTRONIC DEVICES AND CIRCUITS.

Electron tubes, transistors, and electronic circuits. Principles of operation of standard electronic laboratory apparatus. Elements of experimental design utilizing electronic devices. Three lectures and one laboratory per week. Prerequisite: consent of the instructor. Offered in alternate years.

*Four semester hours.*

### 207a. INTRODUCTION TO QUANTUM THEORY.

An introduction to quantum wave mechanics. Solutions of the Schrodinger equation. Operator techniques. Angular momenta. Approximation methods. Spectroscopy. Four lectures per week. Prerequisite: Physics 140b or consent of the instructor. Offered in alternate years. Physics 141-142 at Holy Cross College may be substituted for this course.

*Four semester hours.*

Mr. Kohin.

**208b. INTRODUCTION TO THE SOLID STATE.**

Geometric crystallography and crystal structure; diffraction of waves by crystals, the basic solid types, free electron theory of metals and the thermal, dielectric, optical and magnetic properties of solids. Band theory of solids; the physics of semi-conductors. Magnetic resonance, crystal field theory. Three lectures per week. Prerequisite: Physics 202a. This course is the same as Physics 160 at Holy Cross College and is taught on the Holy Cross campus.

*Four semester hours.*

**209b. INTRODUCTION TO THE NUCLEUS.**

Nuclear models, radioactive decay, nuclear reactions, nuclear forces, particle detectors and accelerators, nuclear instrumentation, counting statistics. One lecture and one laboratory per week. Prerequisite: Physics 207a. This course is the same as Physics 155 at Holy Cross College and is taught on the Holy Cross campus.

*Four semester hours.*

**215b. THEORETICAL PHYSICS.**

Selected topics in theoretical physics. Three lectures per week. This course is the same as Physics 154 at Holy Cross College and is taught on the Holy Cross campus.

*Three semester hours.*

**220. UNDERGRADUATE SEMINAR.**

This course is the same as Physics 120.

*One semester hour each semester.*

**230. SPECIAL TOPICS IN PHYSICS.**

Independent studies in physics to provide for special needs. Individual experimental or theoretical projects are encouraged.

*Variable credit.*

**235. HONORS.**

Independent experimental or theoretical research in physics.

*Three semester hours each semester.*

Staff.

**301b. ADVANCED MECHANICS.**

Lagrangian and Hamiltonian formulations. Kinematics and dynamics of rigid body motion. Canonical transformations. Hamilton-Jacobi theory. Three lectures and one problem session per week. Offered in alternate years.

*Four semester hours.*

**304. ELECTRODYNAMICS.**

Not offered, 1971-72.

Maxwell's equations. The special theory of relativity. Electromagnetic radiation. Boundary value problems. Lagrangian formulation of electrodynamics. Three lectures and one problem session per week. Offered in alternate years.

*Four semester hours each semester.*

Staff.



## 168 PHYSICS

### 305. QUANTUM MECHANICS.

The superposition principle. Linear vector spaces. Electron spin. The Schrödinger and Heisenberg pictures. Angular momentum. Scattering theory. Time-independent and time-dependent perturbation theories. Many particle systems. Three lectures and one problem session per week. Prerequisite: Physics 207 or equivalent.

*Four semester hours each semester.*

### 306. ADVANCED QUANTUM MECHANICS.

Relativistic wave equations, nonrelativistic and relativistic quantum field theory, applications to solid state physics and particle physics. Three lectures and one problem session per week. Prerequisite: Physics 305 or equivalent. Offered in alternate years.

*Four semester hours.*

Mr. Davies.

### 308. THEORY OF ATOMIC AND MOLECULAR SPECTRA.

The electronic configuration of atoms: The Pauli principle and the building-up principle. Fine structure and the spinning electron. The Zeeman and Paschen-Back effects. Nuclear effects: hyperfine structure. The structure and properties of molecules as revealed by rotational, vibrational, and electronic spectra. Covalent and ionic bonds. Two lectures per week. Prerequisite: Physics 305 or consent of instructor.

*Two semester hours each semester.*

Mr. Kohin.

### 309. MAGNETIC RESONANCE.

Not offered, 1971-72.

The theory of the electron spin and nuclear magnetic resonance experiments, particularly in solids. The spin Hamiltonian and the magnetic interaction between particles. Chemical bonds and their description by the molecular orbital method. Two lectures per week. Prerequisite: Physics 308.

*Two semester hours each semester.*

Mr. Kohin.

### 310. SOLID STATE PHYSICS.

This course provides both experimental and theoretical students with a background sufficient to allow them to learn from the current publications in solid state physics. Content includes the experimental techniques of optical spectroscopy, magnetic resonance, particle scattering and nuclear activation; microscopic quantum mechanical models of the lattice; electrons in metals, semiconductors and insulators; magnetic systems and other coherent states of condensed matter; the calculation of equilibrium and transport properties from the microscopic models; the Boltzmann equation; and semi-classical models based on both experiment and theory. Three lectures and one problem session per week. Prerequisite: Physics 208b and 305 or permission of the instructor.

*Four semester hours each semester.*

### 312a. APPLICATIONS OF GROUP REPRESENTATIONS TO PHYSICS.

Representation theory for finite groups. Applications to crystallographic point groups. Representations of continuous compact groups; the rotation group. The Wigner-Eckart theorem and selection rules. The permutation group and its application to a system of identical particles. Classification of the states of a multi-electron atom. Three lectures and one problem session per week.

*Four semester hours.*

- 313b. LOW TEMPERATURE PHYSICS.** Not offered, 1971-72.  
The thermodynamics of low temperature phenomena. The properties of liquid helium. Cryogenics. The low temperature properties of solids, especially superconductivity. Four lectures per week.  
*Four semester hours.* Mr. McEvoy.
- 314. ELECTRON EFFECTS IN SOLIDS.** Not offered, 1971-72.  
Advanced consideration of the behavior of electrons in solids, particularly in conductors and semiconductors. Prerequisite: Physics 305 and 310 or equivalents. Three lectures and one problem session per week.  
*Four semester hours each semester.*
- 315. CRITICAL PHENOMENA.**  
Comprehensive review of critical phenomena with special emphasis on phase transitions. Critical point exponents, Ornstein-Zernicke theory and Landau theory of second order phase transitions. Unified treatment of magnetic, ferroelectric, superconducting, liquid crystal and biological systems. Includes recent experimental work. Four lectures per week. Prerequisite: Physics 202.  
*Four semester hours each semester.* Staff.
- 330. CURRENT PROBLEMS IN PHYSICS.**  
A specific topic in experimental physics is considered at the research level. Topics are selected on the basis of current interest.  
*Variable credit.* Staff.
- 335. TOPICS IN THEORETICAL PHYSICS.**  
An area of theoretical physics chosen principally for students conducting theoretical research. Topics selected, as required, to emphasize special research areas or methods.  
*Variable credit.* Staff.
- 340. COLLOQUIUM.**  
Weekly lectures on various topics of current interest. One meeting per week.  
*One semester hour each semester.* Staff.
- 350. RESEARCH.**  
*Variable credit.* Staff.

# Psychology

## DEPARTMENT FACULTY

Seymour Wapner, Ph.D., *G. Stanley Hall Professor of Genetic Psychology, Department Chairman*  
Robert W. Baker, Ph.D., *Professor of Psychology*  
Roger Bibace, Ph.D., *Professor of Psychology*  
Tamara Dembo, Ph.D., *Professor of Psychology*  
Bernard Kaplan, Ph.D., *Professor of Psychology*  
Morton Wiener, Ph.D., *Professor of Psychology*  
Leonard E. Cirillo, Ph.D., *Associate Professor of Psychology*

- Joseph deRivera, Ph.D., *Associate Professor of Psychology*  
 Donald G. Stein, Ph.D., *Associate Professor of Psychology*  
 David A. Stevens, Ph.D., *Associate Professor of Psychology*  
 Nicholas S. Thompson, Ph.D., *Associate Professor of Psychology and Biology*  
 Ina C. Uzgiris, Ph.D., *Associate Professor of Psychology*  
 Jacques Vonèche, Ph.D., *Associate Professor of Psychology*  
 James D. Laird, Ph.D., *Associate Professor of Psychology*  
 Neil O. Rankin, Ph.D., *Assistant Professor of Psychology*  
 Edward E. Sampson, Ph.D., *Visiting Professor of Psychology*  
 David Zern, Ph.D., *Assistant Professor of Education and Adjunct Assistant Professor of Psychology*  
 Harold Goodglass, Ph.D., *Affiliate Professor of Psychology*  
 Donald M. Broverman, Ph.D., *Affiliate Associate Professor of Psychology*  
 William Vogel, Ph.D., *Affiliate Associate Professor of Psychology*  
 Robert A. Ciottone, Ph.D., *Visiting Lecturer in Psychology*  
 George E. Gardner, Ph.D., *Visiting Lecturer in Psychology*  
 David J. Meyerson, Ph.D., *Visiting Lecturer in Psychology*  
 Malcolm Sills, Ph.D., *Visiting Lecturer in Psychology*  
 Arlene C. Vadum, Ph.D., *Visiting Lecturer in Psychology*  
 Peter Wolff, Ph.D., *Visiting Lecturer in Psychology*  
 Polly Deweese, M.S., *Social Work Consultant to the Psychological Services Center*  
 David Finkel, Ph.D., *Affiliate in Clinical Training*  
 Lawrence Peterson, Ph.D., *Affiliate in Clinical Training*  
 Victor H. Pentlauge, M.D., *Psychiatry Consultant to the Psychological Services Center*  
 Nelson M. Butters, Ph.D., *Affiliate Research Associate in Psychology*  
 Ward J. Cromer, Ph.D., *Affiliate Research Associate in Psychology*  
 Shannon T. Devoe, Ph.D., *Affiliate Research Associate in Psychology*

#### UNDERGRADUATE PROGRAM

The department offers courses for students majoring in psychology, majors in allied fields and students wishing an orientation to the field of psychology as part of their general education.

Psychology 11a or 11b is a prerequisite to all other psychology courses except Psychology 12a. The major in psychology consists of at least 40 semester hours, in either psychology courses or courses designated as related to the major by the Department. At least 20 semester hours must be in psychology courses, and at least 10 semester hours must be in courses related to the major. Majors are required to take Psychology 11a or 11b and a minimum of one laboratory course (Psychology 201b, 203b, 204a, 205a, 206b, 210b, 223b, 236a). Psychology 160b, 260a, or their equivalent is a prerequisite for laboratory courses. In addition, at least 36 semester hours of a major's program must be selected from other than the following fields or courses: All biology, education, linguistics, philosophy, psychology and sociology courses; and selected courses from economics, geography, government, and mathematics. A list of these courses is available in the Department Office.

Honors work in psychology is available to seniors who have demonstrated high scholastic achievement and the ability to work independently in scholarly situations. Students in the Honors Program carry out an independent research project under the sponsorship of a faculty member. This

research provides the basis for a thesis, which upon completion is presented and defended by the student before an examining committee composed of faculty members. On the basis of the report of the examining committee and the student's adviser for the project, the Department may recommend to the College Board that the student be awarded departmental honors at one of the following levels: Highest Honors, High Honors, or Honors in Psychology.

Application for admission into the Psychology Honors Program is normally made during the second semester of the junior year, and no later than May 1 of that year. Six hours of Psychology 296 (Directed Research) and/or Psychology 297 (Directed Reading), taken during the junior year, is prerequisite for admission to the program. Students who have not fulfilled this prerequisite, but who can show evidence of the ability to do independent research, can petition the Department for waiver of the prerequisite.

Students preparing for graduate work are encouraged to take more than one laboratory course, and should also obtain a reading knowledge of French, German or Russian.

## GRADUATE PROGRAM

The department admits to graduate work only those students who plan to enroll in the Ph.D. program on a full-time basis. A Master of Arts degree, based on an experimental thesis, ordinarily completed within the first two years of graduate work, is a requirement for admission to candidacy for the Ph.D. degree. In addition, there is the requirement that every graduate student participate in the Teaching Apprenticeship Program of the department. Credit hours are not ordinarily assigned to graduate courses.

*Master of Arts:* The customary program consists of five-year (ten-semester) courses — including experimental methods in psychology (301a), statistical methods (302) and seven additional semester courses — supplemented by the writing of a thesis in the area of special interest.

*Doctor of Philosophy:* The student is required to pass with distinction five courses during the first year of graduate study and a minimum of four courses during the second year. The departmental language requirement must be met by a knowledge of French, German or Russian. He is required, normally at the end of the second year, through written examination, to demonstrate his competence in psychology as a whole and in an area of specialization. In addition, the student is required to demonstrate his ability to conduct independent research as evidenced by the presentation of an acceptable dissertation. Research for the dissertation should normally be completed during the fourth year at the University; however, the length of the program will vary depending upon individual circumstances. At a final oral examination a student is required to defend his dissertation and to show his competence in the general field of psychology and in his area of specialization.

The overall aim of the graduate program is to provide the student with a general, integrated background covering the various areas of psychology. Within this emphasis there are several specialized programs available and these are described briefly below.

*Clinical Psychology Program.* The department offers a four-year A.P.A.-approved program in clinical psychology leading to the degree of Doctor of Philosophy. Beyond the standards of proficiency in the general field of psychology expected of all students, the student in the Clinical



Program will be required to demonstrate special mastery in the understanding of concepts in the clinical area and in the use of clinical methods. One year of internship is included in this four-year program. Provision is made for a wide variety of practical experiences in cooperating institutions, clinics and agencies. There are over 20 institutions and agencies in Worcester, Boston, Providence and surrounding areas which cooperate in providing such practicum and research facilities. In addition to the one-year internship, all students in the Clinical Program obtain a variety of practicum experiences in the Clark University Psychological Services Center throughout their enrollment in the graduate program. For further information, write to the director of the program: *Dr. Morton Wiener*.

There is a Psychological Services Center on campus which is operated as part of the doctoral training program in Clinical Psychology and which offers some psychological services to students who wish help in academic or personal adjustment. Such services are limited and, where necessary, students will be referred to other appropriate University or community resources.

*Post-doctoral training in clinical psychology* is available. It aims to provide opportunities for clinical psychologists to develop further their clinical and research skills. Facilities of the Department and other agencies are utilized.

*Developmental Psychology Program.* This program is designed to train students in the comparative and experimental analysis of behavioral development. It emphasizes not only the study of human development over a wide age range, but also stresses the application of developmental principles, concepts and methods to problems of general psychology, psychopathology, social psychology, etc. For further information, write to the director of the program: *Dr. Bernard Kaplan*.

*The Experimental Psychology Program.* Training in experimental psychology is available in a variety of areas, including perception, human learning and cognition, physiological, comparative animal behavior and ethology. While students often specialize in one area, they are encouraged to develop competence in several areas. Students interested in neuropsychology, psychopharmacology, electrophysiology, and neurochemistry have been able to utilize for research and training not only our own extensive laboratories, but also other specialized facilities in such institutions as Worcester State Hospital, Boston Veterans Administration Hospital, and several non-profit research laboratories in the area. Since our experimental programs are rather broad, those interested in more information should write to the Department Chairman, *Dr. Seymour Wapner*.

*Rehabilitation Research Training Program.* In conjunction with all other areas of specialization, rehabilitation research training is available. This training is designed to prepare students for investigation of psychological problems as they occur in everyday life. Emphasis on development of novel techniques and concepts is a main feature of the training. An integral part of the program is an apprenticeship-practicum during which the various phases of research in real-life settings are examined under the guidance of a staff member. This program is especially pertinent to those who are interested in social-emotional and value problems of handicapped and non-handicapped people. For further information, write to the director of the program: *Dr. Tamara Dembo*.

*Social Psychology Program.* This program aims to develop an understanding of social behavior and person development. This goal is furthered by a number of different approaches (ranging from ethological to phenomenological) applied to problems such as the development of self-knowledge, interpersonal-relations, and group dynamics. For further information write to the director of the program, *Dr. Joseph deRivera*.

*Interdisciplinary Work.* The Department recognizes the interest of many students to undertake

study and research which cuts across disciplines or areas that now exist. Interdisciplinary activity by students is generally feasible at Clark inasmuch as various members of the Psychology faculty are now, or recently have been, engaged in activities with faculty of such departments as Biology, Education, English, Geography, History and Sociology. Together with staff of the School of Geography members of the Department of Psychology offer undergraduate and graduate courses, workshops and seminars and conduct research in the area of behavior and the environment.

*Financial Aid.* In addition to University scholarships, fellowships, teaching assistantships, and stipends, the Department has available such forms of financial support as United States Public Health Service and Rehabilitation Services Administration training stipends, Veterans Administration assistantships and stipends, NDEA and NSF Traineeships, and research assistantships.

#### THE HEINZ WERNER INSTITUTE OF DEVELOPMENTAL PSYCHOLOGY

Associated with the Department is the Heinz Werner Institute of Developmental Psychology, which has three aims: first, to integrate various research programs dealing with developmental problems; second, to bring to Clark University scholars, teachers, and research workers from disciplines for which developmental problems are pertinent such as anthropology, biology, and certain areas of medicine; third, to train research workers on post-doctoral levels in the comparative-developmental approach to behavior. Information concerning post-doctoral work at the Institute may be obtained by writing to *Dr. Bernard Kaplan*.

Applicants for graduate study in psychology, who are interested in securing more detailed information concerning the Department and its programs, are urged to write to the Department for two brochures: "Information for Graduate Students" and "A Statement Concerning Educational Philosophy and Atmosphere".

#### COURSES

##### 11a. GENERAL PSYCHOLOGY.

Introduction to the principles of human behavior.

*Four semester hours.*

Mr. Vogel.

##### 11b. GENERAL PSYCHOLOGY.

Introduction to the principles of human behavior.

*Four semester hours.*

Mr. Vogel.

##### 12a,b. PSYCHOANALYTIC INTERPRETATION OF BEHAVIOR.

Psychoanalytic contributions to the understanding of human behavior and conflicts.

*Four semester hours.*

Mr. Bibace.

##### 13b. HUMANISTIC PSYCHOLOGY.

Not offered 1971-72.

A survey of various humanistic approaches to understanding human behavior, including those of Maslow, Rogers, the Existential Psychologists, Laing, and Jourard. The focus will be on understanding the sources of such theorizing, the merits of such approaches relative to other theoretical approaches, and on the relationships of humanistic perspectives to related phenomena such as sensitivity training, Eastern "psychological" religions, etc. A number of psychology department staff and graduate students as well as people from outside the department and the University will take part.

*Four semester hours.*

To be announced.

## 174 PSYCHOLOGY

### 103a,b. ABNORMAL PERSONALITY.

Examination of the issues involved in the definition, description, and explanation of deviant behavior.

Prerequisite: 172a.

*Four semester hours.*

To be announced.

### 130a. PSYCHOLOGY OF LEARNING.

Methods and findings in the study of learning are discussed, with emphasis on their relation to theories of learning. Selected controversial issues are examined.

*Four semester hours.*

Mr. Stevens.

### 150a. INTRODUCTION TO CHILD PSYCHOLOGY: PHYSICAL AND INTELLECTUAL DEVELOPMENT.

The normal development of the child from infancy up to adolescence with emphasis on ways of conceptualizing development in cognitive functioning, language, and exploratory behavior.

*Four semester hours.*

Mrs. Uzgiris.

### 150b. INTRODUCTION TO CHILD PSYCHOLOGY: PERSONALITY AND SOCIAL DEVELOPMENT.

The development of the child's personality and interpersonal behavior, in relation to family, peer group and culture.

*Four semester hours.*

To be announced.

### 160b. QUANTITATIVE METHODS.

Introduction to basic techniques of descriptive and inferential statistics. Primarily for sophomores with a good background in algebra, and prospective majors intending to spend the junior year away from Clark.

*Four semester hours.*

Mr. Broverman.

### 170a. INTRODUCTORY SOCIAL PSYCHOLOGY.

Focuses on the dynamic interaction between the person and his social environment: The impact of the group and society on one's attempt to develop as a person. The impact of man's emotional needs on the properties of the groups and societies we construct.

*Four semester hours.*

Mr. Sampson.

### 172a. PSYCHOLOGY OF PERSONALITY.

Consideration of various theoretical approaches, including psychoanalytic, behaviorist and self theories, and of research work in areas such as anxiety, stress, unconscious processes, emotion and motivation.

*Four semester hours.*

Mr. Laird.

### 180b. DESCRIPTIONS OF NATURAL PHENOMENA: SPRING.

A course designed to compare the effectiveness of literary, biological, psychological, graphic, and/or other methodologies in rigorously describing a natural phenomenon. Limited to senior undergraduates with specialized training or skills. Permission of instructor required.

*Four semester hours.*

Mr. Thompson.

**201b. LABORATORY IN SOCIAL PSYCHOLOGY.**

The theme of this laboratory will be man's caring for others and himself. Investigation will begin in a group dynamics laboratory and will, hopefully, branch out to include research on the Clark community, the Worcester community, and the world community of persons. Prerequisite: Psychology 170a and 160b.

*Four semester hours.*

Mr. deRivera.

**203b. LABORATORY IN PERCEPTION.**

The laboratory course in perception will include investigation of sensory and perceptual phenomena in a variety of sense modalities. Theoretical and methodological issues will be considered in the context of specific experimentation. Prerequisite: Psychology 160b or 260a and Psychology of Perception.

*Four semester hours.*

Mr. Vonèche.

**204b. LABORATORY IN LEARNING.**

The course is designed to familiarize students with research methods and experimental designs used in investigations of theories of learning and learning phenomena, with both human and animal subjects. Prerequisite: Psychology 130a and either Psychology 160b or 260a.

*Four semester hours.*

Mr. Stevens.

**205a. LABORATORY IN THINKING.**

Empirical studies of selected problems in such areas as concept formation, problem solving, and psycholinguistics. Related theoretical and methodological issues considered in their historical context. Prerequisite: Psychology 160b or 260a.

*Four semester hours.*

Mr. Cirillo.

**206a. LABORATORY IN PERSONALITY.**

Focus on issues and problems in psychological research in general and in the personality area in particular, the problems being exemplified in studies developed and performed by the class group and by individuals. Experiments may be in any of the conventional areas of personality research, such areas as perceptual defense, motives and performance, self perception, experimenter influence and emotions. Prerequisite: Psychology 160b and 172a, or their equivalents.

*Four semester hours.*

Mr. Laird.

**209a. DEVELOPMENTAL APPROACHES TO BEHAVIOR.**

A critical examination of presuppositions, methods, concepts and empirical inquiries of those concerned with the development of behavioral systems. Implications of developmental conceptualization for all of the life sciences will be discussed. Psychological theories of Freud, Piaget and Werner will be given special emphasis.

*Four semester hours.*

Mr. Kaplan.

**211a. DEVELOPMENTAL APPROACHES TO LEARNING**

Not offered, 1971-72.

Applications of developmental psychology to slow learners in the classroom. Particular attention is paid to the work of Kephart, Rabinovitch and Cruickshank. Practicum work with children is required. Prerequisite: Psychology 160b, 209b.

*Four semester hours.*

Mr. Bibace.

**214a. SEMINAR IN AGGRESSIVE BEHAVIOR.**

Not offered, 1971-72.

A critical examination of the concept of aggression, including theories pertaining to source of aggressivity and its expression as well as relevant empirical evidence. Psychodynamic, behaviorist, and ethological viewpoints will be discussed.

*Four semester hours.*

Mrs. Uzgiris.



**218b. PSYCHOPHYSICS OF FORM.**

Not offered, 1971-72.

A critical review of the traditional approaches to psychophysics and examination of current work in the areas of pattern recognition, signal detection theory, and information theory.

*Four semester hours.*

Messrs. Rankin, Vonèche.

**221b. MYTH, DREAM AND SYMBOL.**

A critical examination of various theories of symbol-formation with special emphasis on the origins, structures and functions of dreams and myths. The relation of dream formation to psychopathology and the recent work on the physiological bases of dreaming will also be discussed. Prerequisite: consent of the instructor. Limited enrollment.

*Four semester hours.*

Mr. Kaplan.

**222a. THE PHYSIOLOGY OF BEHAVIOR.**

A survey of current problems in Physiological Psychology including theories of brain function. Emphasis will be placed on the underlying physiological mechanisms which mediate human behavior, i.e., motivation, emotion, learning, perception, and memory. The course is constructed on a systems approach, designed to demonstrate the complex and interdependent relationship of the body and brain to behavior.

*Four semester hours.*

Mr. Stein.

**222b. LABORATORY IN PHYSIOLOGICAL PSYCHOLOGY.**

Introduction to methods, techniques, and experiments used to study the physiological bases of behavior. Students also participate in debates of interest to the group. Prerequisite: Psychology 222a or consent of the instructor.

*Four semester hours.*

Mr. Stein.

**224b. HUMAN BEHAVIOR AND NERVOUS SYSTEM FUNCTIONING.**

Biological-behavioral relationships in terms of individual differences are discussed. Among the topics covered are: electrophysiological studies of autonomic functioning of stress; EEG; brain localization of behavioral functions in humans by means of electrical stimulation and studies of brain damage; selected problems in psychopharmacology. Equal emphasis is placed upon investigations of normal and abnormal processes.

*Four semester hours.*

Mr. Vogel.

**225a. SEMINAR IN REHABILITATION PSYCHOLOGY.**

Psychological problems in everyday life situations, such as problems of physically disabled, mentally retarded, the aged, the poor, etc., will serve as topics. The primary focus is on interpersonal relationships and value problems.

*Four semester hours.*

Miss Dembo.

**226b. SEMINAR IN INDIVIDUAL DIFFERENCES.**

An examination of the evidence for and explanation of individual differences in cognitive functioning and personality. Particular attention is given to the role of socio-cultural factors in cognitive functioning.

*Four semester hours.*

Mrs. Uzgiris.

**227a. BIOLOGICAL CORRELATES OF BEHAVIOR.**

Special emphasis on sex differences.

*Four semester hours.*

Mr. Broverman.

**228b. PSYCHOLOGY OF LANGUAGE.**

Not offered, 1971-72.

A psychological analysis of the use of symbols in language, dreams, and myth. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Kaplan.

**229b. ADVANCED PRACTICUM IN PHYSIOLOGICAL PSYCHOLOGY.**

A tutorial course available to students who desire to develop expertise in methods appropriate for the study of brain mechanism and behavior. The goal of the course will be to provide the student with the technical capacity to carry out individual research projects in which it may be necessary to perform surgery, prepare and carry out histological examinations, analyze electrophysiological data, etc. Project meetings and workshops in specialized areas will also be available. Prerequisite: Psychology 222a and 222b. Permission of instructor required.

*Four semester hours.*

Mr. Stein.

**230b. CONTEMPORARY ISSUES IN LEARNING.**

Seminar dealing with contemporary theory and research in the psychology of learning. Prerequisite: Psychology 130a and consent of instructor.

*Four semester hours.*

Mr. Stevens.

**231b. SEMINAR IN THE HISTORY OF PSYCHOLOGY.**

Historical development of theories and methods in psychology. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Kaplan.

**236b. LABORATORY IN CHILD PSYCHOLOGY.**

Survey of research methods used in the study of children, with particular emphasis on observational techniques. Lecture: 2 hours. Laboratory: 3 hours. Prerequisite: Psychology 160b, 260a, 150a or 150b.

*Four semester hours.*

To be announced.

**260a. INTRODUCTION TO QUANTITATIVE METHODS IN PSYCHOLOGY.**

Introduction to basic techniques of descriptive and inferential statistics. Primarily for juniors. Prerequisite for all laboratory courses for those who have not taken Psychology 160b.

*Four semester hours.*

Mr. Rankin.

**270b. ADVANCED TOPICS IN SOCIAL PSYCHOLOGY.**

Intensive treatment of selected areas in social psychological research and theory, including: consistency theories in attitude formation and in interpersonal perception; attribution theory in self-perception; social/situational determinants of normal, everyday behavior, and of anti-social behaviors such as violence, criminality and riots. Permission of instructor required.

*Four semester hours.*

Mr. Laird.

**280a. THE HISTORY AND PRESENT STATUS OF INSTINCT.**

It has long been argued and long contested that man and animal alike are guided in their social behavior by innate tendencies. This offering will emphasize the devious and irrational course of progress in a scientific field of study so loaded with social and philosophic implications. Permission of the Instructor.

*Four credit hours.*

Mr. Thompson.

**282a. PRIMATE SOCIAL BEHAVIOR AND HUMAN EVOLUTION.**

The study of the social behavior of monkeys and apes highlights central problems in psychological, zoological, and anthropological approaches to behavior. It also has important implications for the past evolution and present nature of man's sociality.

*Four credit hours.*

Mr. Thompson.

**283b. PRINCIPLES OF BEHAVIOR AND HUMAN EVOLUTION.**

From a broad survey of the social systems of animals, this course will attempt to distill the general principles that have directed the evolution of animal behavior.

*Four credit hours.*

Mr. Thompson.

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### 284a. PIAGETIAN DEVELOPMENTAL PSYCHOLOGY.

A critical examination of presuppositions, methods, concepts, observations and experimentations of the School of Geneva.

*Four semester hours.*

Mr. Vonèche

### 285a. CONCEPTS IN THEORIES OF PERSONALITY – NORMAL AND ABNORMAL.

Consideration and a critical analysis of (1) concepts and issues in theories of personality, and (2) concepts used to account for deviant behavior. Prerequisite: Psychology 172, 103.

*Four semester hours.*

Mr. Wiener.

### 286a. CONCEPTS IN SOCIAL PSYCHOLOGY

Concepts such as identification, alienation, conformity, cohesion, etc. are examined. The first hour of each class session is a lecture devoted to the analysis of a concept. In the second hour, we will divide into small groups which will use Cohn's "theme centered methods" to confront the conceptual analysis with data from our personal experience. Limited to Juniors and Seniors, or permission.

*Four semester hours.*

Mr. deRivera.

### 287b. COMMUNICATION: VERBAL AND NONVERBAL.

A study of the variations in communication patterns for different populations. Prerequisite: an introductory course in psychology.

*Four semester hours.*

Mr. Wiener.

### 288b. SELECTED PROBLEMS IN PSYCHOLOGY.

Seminar to pursue topics in psychology of particular interest to advanced undergraduates. Each student will select a topic and lead the seminar for one or more meetings. The focus of this course will be to learn of the joys of ideas and of independent, scholarly inquiry.

*Four semester hours.*

Mr. Weiner.

### 296a,b. DIRECTED RESEARCH IN PSYCHOLOGY.

Independent study for qualified students not in the honors program. Prerequisite: approval of department chairman.

*Credit to be arranged.*

Staff.

### 297a,b. DIRECTED READINGS IN PSYCHOLOGY.

Independent study for qualified students not in the honors program. Prerequisite: approval of department chairman.

*Credit to be arranged.*

Staff.

### 299. HONORS IN PSYCHOLOGY: SENIOR YEAR.

Students will carry out a research project under the direction of a member of the staff.

*Four semester hours each semester.*

Staff.

### 300. DIRECTED READINGS IN DEVELOPMENTAL THEORIES.

This is a course specifically oriented toward incoming students or those who are relatively unfamiliar with the concepts, methodologies, problems and scope of certain major theoretical systems in developmental psychology. Under the supervision of staff members and advanced graduate students, incoming students will be directed in certain readings designed to provide them with a reasonable acquaintance with both genetic-structural and neo-behaviorist developmental theories: Piaget, Werner, Freud, Erikson, Klein-Fairbairn-Winnicott on one side; Sears, Baer-Bijou, Bandura-Walters on the other. Students in this course will also be asked to read relevant works in theory of knowledge and philosophy of science pertaining to the developmental approaches. Periodic discussions of the materials read will be arranged with staff and advanced graduate students. After each bloc of readings, there will be intensive discussions with either a staff member or outside visitor.

Staff.



**301. EXPERIMENTAL METHOD IN PSYCHOLOGY.**

During the first semester, the experimental method will be briefly treated in general terms and then developed more specifically with respect to the research of staff members, who will present their own current research with an emphasis on the special features of methodology they employ, including the links between method, theory, problems and findings. During the second semester, there will be informal ad hoc individual or group meetings, with faculty of the student's own choice, working toward developing an empirical study of a problem that the student may or may not develop into a Master's Thesis. At the end of the first semester, the student will prepare a progress report on the status of his formulation of an empirical problem. At the end of the second semester, the student will present a written report for deposit with the Department which covers the status of the student's problem formulation and research.

Mr. Wapner.

**302. STATISTICAL METHODS.**

Descriptive statistics, statistical inference and experimental design in psychology.

Mr. Rankin.

**307a. PHYSIOLOGICAL PSYCHOLOGY: ADVANCED.**

A survey of current problems, theories and controversies in physiological psychology. Course orientation will be similar to the introductory course with more attention to critical experiments and controversies. Also considered will be the neuroanatomy and neurophysiology of important CNS structures. Prerequisite: Some knowledge of experimental methods in psychology.

Mr. Stein.

**307b. SELECTED PROBLEMS IN PHYSIOLOGICAL PSYCHOLOGY.**

An advanced course in research methodology including surgical and stereotaxic techniques, histology, EEG recording and analysis and general methods for animal care. Open only to graduate students, and by permission of instructor.

Mr. Stein.

**308a. DISCONTINUITIES IN DEVELOPMENT.**

This course will examine the issues involved in transition from lower to higher stages of social development.

Mr. Sampson.

**309. APPRENTICESHIP IN REHABILITATION: Introductory I.**

Miss Dembo.

**310. APPRENTICESHIP IN REHABILITATION: Introductory II.**

Miss Dembo.

**311a. CLINICAL METHODS I.**

Intelligence testing with adults. Emphasis is placed upon conceptual frameworks for cognitive assessment.

To be announced.

**311b. CLINICAL METHODS I.**

Intelligence testing with children. Emphasis is placed upon conceptual frameworks and cognitive assessment.

Mr. Ciottone.

**312a. PSYCHOPATHOLOGY.**

Introduction to psychopathology: Directly through naturalistic observation and talking with seriously disturbed individuals; and indirectly by reading clinical and experimental reports related to description and explanation in psychopathology. A paper on some specific psychopathological phenomenon (e.g., delusions, hallucinations) will be required.

Mr. Bibace.

**313b. PRINCIPLES AND CONCEPTS UNDERLYING PSYCHOLOGICAL TESTS.**

Not offered, 1971-72.

Theory and problems of psychological measurement with special reference to psychological tests.

Mr. Laird.

**315b. ADVANCED CHILD PSYCHOLOGY: PERSONALITY-SOCIAL.**

Discussion of current conceptions and research pertaining to some question in the general area of personality-social development, such as imitation-identification, moral reasoning, etc.

Mrs. Uzgiris.



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### 316a. RESEARCH METHODS IN THE STUDY OF CHILDREN.

Not offered, 1971-72.

Survey of methods used in the study of children with emphasis on observational techniques. Questions of research strategy and analysis of findings in the study of developmental problems will be considered.

Mrs. Uzgis.

### 317b. BEHAVIOR IN INFANCY.

Not offered, 1971-72.

Examination of various aspects of infant behavior with opportunity to participate in empirical work with infants.

Mrs. Uzgis.

### 318. SEMINAR IN PSYCHOLOGY OF INTERPERSONAL RELATIONSHIPS AND REHABILITATION

Value problems pertinent to interpersonal relations will be discussed, including value possessions, value losses, regaining of values and adjustment to value losses.

Miss Dembo.

### 320a. ADVANCED SEMINAR IN GENETIC-STRUCTURAL THEORIES.

In this seminar, the major categories of all genetic-structural developmental theories (Freud, Werner, Piaget, et al) and the concepts and methodologies specific to different theories will be thoroughly examined and critically analyzed. This is an ongoing seminar comprised of advanced graduate students and including interested faculty. The seminar deals with the systemic roles of such concepts as "development," "structure," "regression," "system," "stage", etc.

Mr. Kaplan.

### 320b. ADVANCED SEMINAR ON ORGANISMIC-DEVELOPMENTAL APPROACHES TO BEHAVIOR.

Basic categories of the organismic-developmental approach to life sciences, with examination of the application of these categories to a wide range of problem areas in psychology.

Mr. Kaplan.

### 322a. PSYCHOLOGY OF LEARNING.

Theoretical viewpoints and experiments in the field of learning.

Mr. Stevens.

### 323b. SEMINAR IN LEARNING.

Contemporary problems in learning.

Mr. Stevens.

### 324a. THEORIES OF PERSONALITY.

This course covers three areas: 1) Discussion of the philosophical bases of "Theories" of personality; 2) Consideration of some of these issues in different theories (e.g., Freud, Kelly, Dollard, and Miller); and 3) Presentation and discussion of an alternative framework derived from the current work of Wiener, et al.

Mr. Wiener.

### 330a. GRADUATE SEMINAR ON TEACHING OF GENERAL PSYCHOLOGY.

Not offered, 1971-72.

Graduate Students who will participate as teaching assistants in General Psychology, will work on the formulation of all features of the course including assignments, responsibilities for lectures, readings, demonstrations, etc.

Mr. Wapner.

### 331a. CLINICAL METHODS, II.

Application of various clinical methods in the assessment of personality.

Mr. Ciottone.

**331b. CLINICAL METHODS, II**

Application of developmental theory to the clinical assessment of cognitive functioning and personality by means of projective techniques. Mr. Cirillo.

**332b. THEORIES OF PSYCHOTHERAPY.**

Comparison of various theoretical approaches to psychotherapy. Mr. Wiener.

**334b. SEMINAR IN ANIMAL BEHAVIOR.**

A consideration of contemporary issues in the phylogeny and ontogeny of behavior in general and social behavior in particular. Mr. Thompson.

**335a. PRAXIOLOGY.**

A study of human action seen from the standpoint of efficiency and as such unifying various domains like: body techniques, technology, crafts, ethics, social action, literature and religion.

Mr. Vonèche.

**336b. GENETIC EPISTEMOLOGY.**

A critical review of the hypotheses presented to account for the apparent contradictions between the continuous creation of novelties (progress) and the double fact first that, from a logical viewpoint, these novelties become necessary as soon as they are constructed and that, second, at the reality level, they are the only ones to permit the conquest of objectivity. Special emphasis will be put on developmental solutions, their methodologies and their results in the field of biopsychogenesis of knowledge.

Mr. Vonèche.

**337a. FUNCTIONS OF THE DIFFERENT EMOTIONS.**

Following the rules of "Conceptional Confrontation," we will attempt to explicate a different function for each emotion in a way that systematically relates the emotions named in the English language.

Mr. deRivera.

**338a. CONCEPTIONS OF PERSON.**

Examination of research and theory in the areas of self concept and of person perception with a focus on relationship between the two.

Mr. Laird.

**339a. SEMINAR ON THE EFFECTS OF EARLY EXPERIENCE.**

An examination of recent evidence pertaining to the effects of various circumstances during early ontogenesis on the course of cognitive and motivation development aimed at conceptualizing these effects within a coherent framework.

Mrs. Uzgiris.

**340b. PHENOMENONOLOGY OF INTERPERSONAL RELATIONS.**

The interpersonal phenomenon which occur in sensitivity groups will be systematically examined with the methodology of "Conceptional Confrontation."

Mr. deRivera.

**343b. PERSON PERCEPTION.**

Examination of the process by which impressions of others are formed.

Mr. Rankin.

**348b. SOCIAL PSYCHOLOGICAL PERSPECTIVES ON PROBLEMS OF ADJUSTMENT.**

Examination of "deviant" behavior as a socially defined phenomenon, including attention to: the process of attitude and belief formation and change; attribution of characteristics to the self and others; "cognitive" influences on motivation and emotions; socialization of children and adults; and the role of the deviant in society. Consideration of implications of these topics for behavior change.

Mr. Laird.

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349. APPRENTICESHIP IN REHABILITATION: ADVANCED, I. Miss Dembo.
350. APPRENTICESHIP IN REHABILITATION: ADVANCED, II. Miss Dembo.
351. CLINICAL METHODS, III.  
Practicum in case integration and child therapy. Mr. Gardner.
352. CLINICAL METHODS, IV.  
Practicum in intake interviewing and psychotherapy. Staff.
- 357a. SYMBOLIC BEHAVIOR. Not offered, 1971-72.  
A seminar focusing on the problem of representation or symbolization, with special attention to the representation of abstract or "intangible" conceptions (meanings) in concrete objects, events, patterns, etc. The seminar will concern itself with the developmental processes by which individuals represent meanings in dreams, political cartoons, spatial arrangements, material structures and finally linguistic forms. Discussions will center on theses advanced by Freud, Jung, Stekel, E.T. Hall, J. Ruesch, E. Goffman, M. Eliade, Cassirer, Susanne Langer, Werner and Kaplan. Also considered will be writings of literary critics, such as Kenneth Burke, Northrop Faye, Stanley Hyman and others, as well as the works of folklorists, students of ritual and myth (e.g., Campbell). Mr. Kaplan
377. PRACTICUM IN PHYSIOLOGY  
An intensive course dealing with physiological techniques and research methods appropriate for brain research. Students should expect to spend at least one full day per week in the lab in order to develop the skills necessary for carrying out independent research. Mr. Stein.
380. RESEARCH IN PSYCHOLOGY  
Direction of individual students in their research. Staff
381. READINGS IN PSYCHOLOGY.  
Critical analysis of literature in areas related to individual research. Staff.
- 382b. PRACTICUM IN SCHOOL SYSTEM.  
Organismic-developmental approach to assessment, remediation, and consultation in a school system. Mr. Bibace and Agency Staff.
- 383b. PRACTICUM IN CONSULTATION WITH CLERGY.  
Consultation in cognitive problem solving approach to human issues confronting clergy in various settings (e.g., general hospitals, mental hospitals, parishes, etc.) Mr. Bibace and Agency Staff.
385. PARTICIPATION IN PSYCHOLOGICAL SERVICES CENTER, I. Mr. Bibace and staff.
386. PARTICIPATION IN PSYCHOLOGICAL SERVICES CENTER, II. Mr. Bibace and staff.
387. PARTICIPATION IN PSYCHOLOGICAL SERVICES CENTER, III. Mr. Bibace and staff.
388. PARTICIPATION IN PSYCHOLOGICAL SERVICES CENTER, IV. Mr. Bibace and staff.
389. INTERNSHIP. Staff.

# Romance Languages

## DEPARTMENT FACULTY

J. Fannin King, M.A., *Associate Professor of Romance Languages,*

*Acting Department Chairman*

Raymond E. Barbera, Ph.D., *Professor of Romance Languages\**

J. Richard Reid, Ph.D., *Professor of Romance Languages*

Pierre L. Horn, M.A., *Assistant Professor of Romance Languages*

John F. Hyland, M.A., *Assistant Professor of Romance Languages*

Nancy Baum Missud, M.A.Ed., *Instructor in Romance Languages*

Claire Quintal, *Docteur de l'Université de Paris, Associate Professor*  
(*Affiliate*) of French

\*On leave of absence, second semester.

## UNDERGRADUATE PROGRAM

The department offers courses in the languages and literatures of France, Spain and Spanish America. These courses fall principally into two groups: lower level (French and Spanish 11 and 12), and upper level (all other courses). French 113 (French civilization) constitutes a separate category.

In the lower level the primary aim is the mastery of the skills of communication in a language, with a view to its effective use for a variety of possible ends. These skills include reading, writing, speaking and understanding as well as what may be called basic literacy in the language.

In the upper level, the primary aim is an acquaintance in depth with a foreign civilization, principally through a study of its literature but with attention also to other aspects of its culture and to the further perfection of linguistic competence. The courses in literature are complemented by others in civilization and in advanced composition, conversation and phonetics.

A major in Romance languages must comprise:

1. Thirty semester hours to be chosen from French 137 and above and/or Spanish 137 and above.
2. French 113 or the equivalent.
3. French 261 (for students principally majoring in French). The number of semesters of this course shall be determined by the student's needs.
4. At least 6 semester hours, to be approved by the department, in non-Romance literature.

The Romance language major program may be in either French or Spanish exclusively, or include both languages in any proportion to suit the needs and desires of the individual. Major students are urged, however, to acquire a basic competence in both languages even though specializing in only one.

In addition, at least 36 semester hours of a major's program must be selected from other than Group C courses (See Page 24 concerning "Groups").

Students intending to major in Romance languages should consult the department chairman. An honors program in Romance languages is available to qualified upperclassmen.

## LANGUAGE LABORATORY

A modern electronic language laboratory is available for class instruction, and independent study. Use of the laboratory is required of students in the lower level and "137" courses in French and Spanish, and available to others.



## COURSES IN FRENCH

### 11. ELEMENTARY.

For beginners or others not yet qualified to enter the intermediate course. Grounding in all four language skills (hearing, speaking, reading, writing) as preparation for subsequent courses conducted in the language. Four class meetings a week plus three half-hour periods of individual work in the language laboratory. Indivisible course.

*Four semester hours each semester.*

Staff.

### 12. INTERMEDIATE.

Review of the elements and further development of communication skills aimed at a basic literacy. Conducted in French. Four class meetings a week plus three half-hour periods of individual work in the laboratory. Prerequisite: French 11 or equivalent skill in the language, to be determined by a placement test. Students will normally proceed into French 131 at the end of the first semester of French 12.

*Four semester hours each semester.*

Staff.

### 131. READINGS IN FRENCH LITERATURE.

Third-year level. The emphasis in the first semester is mainly on the study of 20th-century literature analyzed with respect to theme, tone, symbol, character and plot. The second semester deals with literary and social aspects of outstanding modern authors. Conducted in French. Prerequisite: The first semester of French 12 or equivalent skill in the language, to be determined by a placement test.

*Four semester hours each semester.*

Mr. Horn.

### 132a. THE LITERATURE OF EXISTENTIALISM.

Readings in both the imaginative and the critical works of the major French exponents of existentialism, with emphasis on the social and psychological implications of the movement. Conducted in French. Prerequisite: French 131 or equivalent level of skill in the language. Admission subject to the consent of the instructor.

*Four semester hours.*

Mr. Hyland.

### 134b. THE SECOND SEX: WOMEN WRITERS IN FRENCH LITERATURE.

Third-year level. An in-depth examination of representative women writers, with special emphasis on Simone de Beauvoir, Françoise Sagan and Colette. Conducted in French. Prerequisite: First semester of French 131, or grade of B- or higher in French 12, or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor.

*Four semester hours.*

Mr. Horn.

### 137. ORAL AND WRITTEN FRENCH.

The aim of this third-year course is to perfect skills in communication both oral and written. In the first semester, particular attention is given to the sounds of French and to its rhythm and melodic patterns. In the second semester, increasing attention is given to grammatical patterns and written French and fluency in the spoken language. Conducted in French. Two regular class periods, one two-hour session, and three half-hour periods in the laboratory per week. Prerequisite: Grade of B- or higher in French 12, or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor.

*Four semester hours each semester.*

Mr. King.

**247b. EXPOSITORY WRITING AND STYLISTICS.** Not offered, 1971-72.  
 Introduction to *explications de textes* as a technique for the analysis of literature; study of rhetorical methods and their application, through the writing, in French, of critical essays to enhance appreciation and command of the written language. Conducted in French. Prerequisite: Grade B- or higher in French 137, or the equivalent. Offered in alternate years.  
*Four semester hours.* Mr. Horn.

**251a. THE ROMANTIC SPIRIT.**  
 A tracing of Romantic elements in French literature from the late middle ages to the mid-nineteenth century with principal emphasis on the period between 1820 and 1850. Conducted in French. Admission subject to the consent of the instructor.  
*Four semester hours.* Mr. King.

**253a. THE THEATER IN FRANCE.**  
 A study of landmarks in the development of French theater. Particular concentration on two periods: the medieval comic and religious theater, and the nineteenth-century theater. Conducted in French. Admission subject to the consent of the instructor.  
*Four semester hours.* Mr. Hyland.

**254b. THE MODERN NOVEL.**  
 A study of a few outstanding dramatists, novelists and poets to illustrate the diverse literary attitudes characteristic of 20th-century French literature. Conducted in French. Admission subject to the consent of the instructor.  
*Four semester hours.* Mr. Horn.

**257b. FRENCH POETRY FROM CHARLES D'ORLEANS TO THE BAROQUE (1400-1630).**  
 The main currents of French poetry from the last of the great medieval poets to the beginning of the classical period. Special attention will be given to Charles d'Orléans, François Villon, Clément Marot, Joachim du Bellay and Pierre de Ronsard. Conducted in French. Admission subject to the consent of the instructor.  
*Four semester hours.* Mr. King.

**261. SENIOR TUTORIAL.** Not offered, 1971-72.  
 A program of extensive readings and of tutorial meetings designed to provide the student with a broad view of the whole of French literature. The readings will be planned individually for each student in order to complement his previous course work.  
*Four semester hours each semester.* Staff.

**106. SPECIAL TOPICS IN FRENCH.** Staff.

**206. SPECIAL TOPICS IN FRENCH.** Staff.

# **COURSES GIVEN IN ENGLISH**

**113. INTRODUCTION TO FRENCH CIVILIZATION.** Not offered, 1971-72.  
 A selective survey of the history, art, literature, and music of France, from the Middle Ages to modern times. Conducted in English. An elementary knowledge of French is desirable but not required. Offered in alternate years.  
*Three semester hours each semester.* Miss Quintal.

## 186 ROMANCE LANGUAGES

### 130a. MODERN FRENCH NOVEL.

Readings and discussions of outstanding works of contemporary French fiction, including novels by Gide, Malraux, Sartre, and Camus.

*Four semester hours.*

Mr. Horn.

### 130b. THE THEATER OF REVOLT.

A study of plays representative of surrealist, symbolist, existentialist and absurdist theater, and discussion, of Artaud's theory of the Theater of Cruelty. Among the playwrights to be read: Jarry, Cocteau, Vitrac, Camus, Beckett, Vian, Sartre, Ionesco, Césaire and Genet.

*Four semester hours.*

Mr. Hyland.

### COMPARATIVE LITERATURE 18. LITERATURE AND THE NATURE OF MAN.

Ideas held by outstanding literary artists of the Western World concerning the nature of man and his relation to the universe. The works are also to be studied as representative of the cultures of which they are products. The subject matter discussed includes Sophocles' *Oedipus the King*, the *Book of Job*, Dante's *Divine Comedy*, Shakespeare's *King Lear*, Milton's *Paradise Lost*, Moliere's *Misanthrope*, Goethe's *Faust*, and selected poems of T.S. Eliot. All non-English works are read in translation. Admission subject to the consent of the instructor.

*Four semester hours each semester.*

Mr. King, Mr. Anderson.

## COURSES IN SPANISH

### 11. ELEMENTARY.

For beginners or others not yet qualified to enter the intermediate course. Grounding in all four language skills (hearing, speaking, reading, writing) as preparation for subsequent courses conducted in the language. Four class meetings a week plus three half-hour periods of individual work in the language laboratory. Indivisible course.

*Four semester hours each semester.*

Staff.

### 12. INTERMEDIATE.

This course is designed to improve one's reading skill. Conducted in Spanish. Three class meetings a week plus three half-hour periods of individual work in the laboratory. Prerequisite: Spanish 11 or equivalent skill in the language, to be determined by a placement test. Students will normally proceed into Spanish 131 at the end of the first semester of Spanish 12.

*Four semester hours each semester.*

Mr. Barbera.

### 131. READINGS IN SPANISH AND

#### SPANISH-AMERICAN LITERATURE.

Third-year level. The emphasis in the first semester is on reading as communication, with analysis and practice of the techniques of reading in Spanish; in the second semester, on the understanding of works of high literary quality and broad appeal. Readings from Spain and one American nation, selected with a view to developing insight into the respective cultures. Conducted in Spanish. Prerequisite: Spanish 12 or equivalent skill in the language, to be determined by a placement test.

*Three semester hours each semester.*

Mr. Reid.

### 131.1a, 131.1b. MEXICAN THEMES.

Independent study of literature dealing with some theme of Mexican culture, of the student's choosing. Written report. Limited to students who are currently enrolled in, or who have previously completed, the second semester of Spanish 131.

*Variable credit.*

Mr. Reid.

**137. ORAL AND WRITTEN SPANISH.**

Not offered, 1971-72.

Third-year level. A rapid, intensive review of grammar; the elements of phonetics; exercises in composition and pronunciation; conversational practice. Conducted in Spanish. Two regular class periods, one two-hour session, and one to two hours in the laboratory per week. Prerequisite: Grade of B- or higher in Spanish 12 or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor. Offered in alternate years.

*Four semester hours each semester.*

Mr. Barbera.

**242a. EARLY SPANISH LITERATURE FROM THE  
POEMA DE MIO CID TO THE CELESTINA.**

Not offered, 1971-72.

This course will emphasize the nature of epic poetry, the first manifestation of "realism" in the literature of the Middle Ages, and will culminate in the hybrid masterpiece, the *Celestina*, a combination of novel and drama, unique in the history of European literature. Conducted in Spanish. Prerequisite: Grade of B- or higher in a third-year course. Offered in alternate years.

*Four semester hours.*

Mr. Barbera.

**245a. THE MODERN NOVEL.**

A number of 19-century novels will be read. The 20th century will be represented by such outstanding novelists as Galdós (who bridges the 19th and 20th centuries), Unamuno, Valle-Inclán, Baroja and Delibes. Conducted in Spanish. Prerequisite: Grade of B- or higher in Spanish 131 or 137, or the equivalent. Offered alternate years.

*Four semester hours.*

Mr. Barbera.

**246b. TOPIC NOT YET DETERMINED.**

To be offered by Visiting Professor.

**247b. TOPIC NOT YET DETERMINED.**

To be offered by Visiting Professor.

**COURSE GIVEN IN ENGLISH**

**130a. CERVANTES.**

This course will concentrate upon *Don Quixote* with excursions into other writings of Cervantes illustrating the changes in his literary development. Cervantes' debt to previous literary works will be studied. Extensive reading of critical material pertinent to the Quixote will be required. The course will be conducted in English. For students without a command of Spanish, readings will be available in English.

*Four semester hours.*

Mr. Barbera.

**106. SPECIAL TOPICS IN SPANISH.**

Staff.

**206. SPECIAL TOPICS IN SPANISH.**

Staff.

**COURSES IN ROMANCE LANGUAGES**

**201. HONORS: JUNIOR YEAR.**

*Variable credit, normally four semester hours each semester.*

Staff.

**202. HONORS: SENIOR YEAR.**

*Variable credit, normally four semester hours each semester.*

Staff.



106. SPECIAL TOPICS IN ROMANCE LANGUAGES.

Staff.

206. SPECIAL TOPICS IN ROMANCE LANGUAGES.

Staff.

## Russian

### DEPARTMENT FACULTY

Walter Schatzberg, Ph.D., *Associate Professor of German, Coordinator of Russian Program*

Serge Durlin, Jr., M.A., *Assistant Professor of Russian*

### UNDERGRADUATE PROGRAM

Courses are offered in Russian language and literature to provide a competent reading and speaking knowledge of the language essential for carrying on advanced study in many fields and to provide an introduction to Russian civilization. For information about advanced Russian literature courses taught at other Worcester consortium colleges see Mr. Durilin or Mr. Schatzberg.

#### 11. INTRODUCTORY RUSSIAN.

An introduction to the written and spoken language. Four class periods and three laboratory sessions per week. Indivisible course.

*Four semester hours each semester.*

Mr. Durilin.

#### 12. INTERMEDIATE RUSSIAN.

Advanced Russian grammar. Continued emphasis upon reading and conversation. Three class periods, one supervised drill session, and three laboratory sessions per week. Open to qualified freshmen.

*Four semester hours each semester.*

Mr. Durilin.

#### 13. ADVANCED RUSSIAN.

Not offered, 1971-72.

Intensive reading of contemporary and literary sources. Advanced composition and conversation.

*Three semester hours each semester.*

Mr. Durilin.

#### 88. DIRECTED READINGS.

Students interested in specific authors and/or topics in Russian literature and civilization may receive instruction and guidance in either English or Russian.

*Variable credit.*

Mr. Durilin.

## Sociology

### DEPARTMENT FACULTY

Howard R. Stanton, Ph.D., *Professor of Sociology*

Stanford N. Gerber, Ph.D., *Assistant Professor of Social Anthropology and Sociology*

Christopher J. Hewitt, Ph.D., *Assistant Professor of Sociology*

Mario Montano, Ph.D., *Assistant Professor of Sociology*

## **UNDERGRADUATE PROGRAM**

An undergraduate major in sociology is designed to provide the student with an understanding of the intellectual tradition which has focused on description and explanation of human society, its structure, organization, and process. Emphasis is on both theoretical aspects of society in general and specifically the nature of American society. Requirements for a major in sociology consist of 24 semester hours in sociology, of which six must be from 1-level courses and six from an advanced theory course (Sociology 290 or its equivalent). In addition, 18 semester hours must be in related fields, which are: economics, government, history, international relations, linguistics, philosophy, psychology; Education 201, 205, 230, 280; and Geography 161, 207, 261, 269, 272, 273. All students are encouraged to take 1-level courses during their freshman and sophomore years, since preference is given to underclassmen. Six semester hours of 1-level courses are the prerequisite for all 2-level courses.

In addition, at least 36 semester hours of a major's program must be selected from other than the related fields listed above.

## **COURSES**

### **113b. SOCIAL THEORY IN A NUTSHELL.**

A synthetic presentation of social theory, based on those generalizations which are widely accepted and which can form a coherent body of scientific thought. This material sacrifices the complexity of detailed theoretical issues in separate social science disciplines in order to emphasize an underlying view of human nature and its relevance to current issues. The course will challenge preconceptions about society.

*Three semester hours.*

Mr. Stanton.

### **115b. PERSPECTIVES ON MODERN AMERICAN SOCIETY.**

A study of the major features of industrial society: the family, religion, politics, the economy and social stratification. Consideration of these topics will be from a comparative perspective, and also show the interdependence of the various institutions with one another.

*Three semester hours.*

Mr. Hewitt.

### **116b. SOCIOLOGY OF RACISM.**

Not offered, 1971-72.

The genesis and function of racism in contemporary society.

*Three semester hours.*

Mr. Montano.

### **117a. SOCIAL PSYCHOLOGY.**

Not offered, 1971-72.

An examination of small-scale coordinating processes and of the relationship between individual and social processes.

*Three semester hours.*

Mr. Stanton.

### **12a. SOCIAL ANTHROPOLOGY.**

An analysis of primitive society with emphasis on social structure, including religion, kinship and economics. The relation between culture and personality and the processes of social change in the primitive world are explored.

*Three semester hours.*

Mr. Gerber.

## 190 SOCIOLOGY

### 124a. SOCIOLOGY OF LIFE STYLES.

An investigation of the variety of contemporary life styles through the use of historical and sociological materials. Emphasis will be placed on the social influences that lead individuals into different life styles. The relationship between personal history and underlying structural trends will be examined. The course will allow for individual research projects.

*Four semester hours.*

Mr. Montano.

### 145b. COMPARATIVE SOCIAL INSTITUTIONS.

Not offered, 1971-72.

Cultural variations of selected institutions and social groupings. Data are drawn from such regions as the Caribbean, Melanesia, Micronesia, Russia, China, Africa, and the United States.

*Three semester hours.*

Mr. Gerber.

### 150a. VARIETIES OF SOCIAL EXPERIENCE.

Experience is a key concept in social theory and in social change. Students will read on the sociology of experience; will experiment with experience both inside and outside of class; and will, as a term project, explore experience as a tactic in the development of alternate models of society.

*Four semester hours.*

Mr. Stanton.

### 165b. SOCIAL MOVEMENTS.

Social movements in the sixties and seventies. The course may be broken down into study groups on specific social movements.

*Three semester hours.*

Mr. Montano.

### 175b. SOCIOLOGY OF CONFLICT.

Not offered, 1971-72.

Is there a viable *general* theory of conflict? Parsons and functionalism vs. "the new sociology"; value-free sociology vs. "radical" sociology; social systems approach vs. historical specific analysis; social harmony vs. positive and negative social conflict.

*Three semester hours.*

Mr. Montano.

### 19a. SOCIAL STRATIFICATION.

An analysis of the major dimensions of social stratification in contemporary society. Economic class, social status, power, class consciousness, social mobility and the consequences of class differences.

*Three semester hours.*

Mr. Hewitt.

### 201b. HISTORY OF SOCIO-CULTURAL THEORY.

Not offered, 1971-72.

A seminar in which the history of social and cultural theories is explored. Prerequisite: In addition to the usual prerequisite, consent of the instructor.

*Three semester hours.*

Mr. Stanton.

### 210a. INTRODUCTION TO STATISTICAL REASONING.

Not offered, 1971-72.

Statistical distributions, association, and sampling. The course will be taught with an IBM 1620. Prerequisite: In addition to the usual prerequisite, consent of the instructor.

*Three semester hours.*

Mr. Stanton.

### 22a. ANTHROPOLOGICAL FIELD METHODS.

Not offered, 1971-72.

A seminar on field work methods. The role of the participant-observer. Recording cohesion and disintegration. Students obtain supervised field experience.

*Four semester hours.*

Mr. Gerber.

**220a. POWER AND DECISION-MAKING.**

A theoretical and empirical consideration of the nature of power in modern society. The seminar will examine the policy-making process in the United States and Britain with reference to a variety of national issues.

*Three semester hours.*

Mr. Hewitt.

**221a. POLITICAL SOCIOLOGY.**

Political attitudes and voting. Party competition in democracies. Totalitarianism, political development in new states. Prerequisite: In addition to the usual prerequisite, consent of the instructor.

*Three semester hours.*

Mr. Hewitt.

**222a. SEMINAR IN SOCIAL POLICY.**

A review of social policy options, as developed on local, national and international levels. Examination of this material will stress the effects of social services (health, education, employment, housing, welfare) on societal forms and processes. These effects will be examined from a social planning (fiscal, administrative) as well as a social action (power) point of view. Prerequisite: In addition to the usual prerequisite, consent of the instructor.

*Three semester hours.*

Mr. Stanton.

**223b. PSYCHOLOGICAL ANTHROPOLOGY.**

An examination of theory and method in psychological anthropology. The relationship between culture and personality; basic personality types; national character; language and culture. Prerequisite: In addition to the usual prerequisite, consent of the instructor.

*Three semester hours.*

Mr. Gerber.

**225b. ECONOMY AND SOCIETY.**

The course will consider the social factors which affect economic behavior and institutions, and also the impact of industry upon developing and modern societies. Topics will include both the micro-sociological (the meaning of work to the individual, work groups, managerial strategies) and the macro-sociological (economic development, changes in capitalist society). An acquaintance with economic theory would be advantageous to the student. Prerequisite: In addition to the usual prerequisite, consent of the instructor.

*Four semester hours.*

Mr. Hewitt.

**235b. SEMINAR ON THE DIVISION OF LABOR.**

Theories on the division of labor. Manual and intellectual labor; productive and unproductive labor; workers and students.

*Three semester hours.*

Mr. Montano.

**268b. SOCIOLOGY OF UTOPIA.**

Not offered, 1971-72.

A constant theme of Western society has been the idea that radically different forms of society are possible. This idea has resulted in blueprints for new societies, and also attempts to set up new communities. The seminar will consider the social contact in which utopianism arises and the various forms it has taken and evaluate the success of the experiments and the realism of the plans. The implication of utopianism in extending our understanding of society will be stressed (e.g., what particular social structures appear essential, how much variation is possible, etc.). Prerequisite: In



addition to the usual prerequisite, consent of the instructor.

*Four semester hours.*

Mr. Hewitt.

275b. THE ETHNIC COMMUNITY.

An intensive investigation of the structure of ethnic communities with consideration of customs, life cycle, folk medicine, religion, and language.

*Three semester hours.*

Mr. Gerber.

276a. ETHNOGRAPHY OF THE CARIBBEAN.

An intensive survey of cultures of the Caribbean. Special attention will be paid to problems of development and change in the Eastern and Southern Caribbean. Prerequisite: In addition to the usual prerequisite, consent of the instructor.

*Three semester hours.*

Mr. Gerber.

285. READINGS IN SOCIOLOGY.

*One to three semester hours.*

Staff.

290a. CLASSICAL SOCIOLOGICAL THEORY.

Idealist, positivist, and Marxist approaches. Marx, Weber, and Durkheim on the methodology of the social sciences.

*Three semester hours.*

Mr. Montano.

290b. CONTEMPORARY SOCIOLOGICAL THEORY.

An examination of the current major sociological theories and controversies. The work of Parsons, Merton, Homans, Blau, Dahrendorf, and such topics as functionalism, the nature of the social system, reductionism, and conflict theory.

*Three semester hours.*

Mr. Hewitt.

298b. SEMINAR IN SOCIAL ACTION.

A critical evaluation of anthropological, sociological, and literary sources and their applications to contemporary social problems.

*Four semester hours.*

Mr. Gerber.

299b. SEMINAR IN CLASSICAL SOCIOLOGICAL THEORY.

Not offered, 1971-72.

A continuation in greater depth of Classical Sociological Theory, with emphasis on class analysis. Prerequisite: In addition to the usual prerequisite, Soc. 290a and/or consent of the instructor.

*Four semester hours.*

Mr. Montano.

## Theatre Art

### PARTICIPATING FACULTY

Edward J. Herson, M.A., *Director of the Division of Theatre Art,*  
*College of the Holy Cross*

Donald W. Ilko, Ph.D., *Assistant Professor of Theatre Art,*  
*College of the Holy Cross*

Neil R. Schroeder, Ph.D., *Associate Professor of English, Clark*  
*University*

## UNDERGRADUATE PROGRAM

The program in Theatre Art is offered through the cooperation of Clark University, the College of the Holy Cross, and Assumption College. It is designed to give the student both practical and scholarly experience in all phases of theatre, to develop theatre artists with a sound humanistic education, and to prepare them for graduate training in educational and professional theatre. Courses are open to all qualified undergraduates who are willing to devote the time and energy which are necessary for their completion.

In many cases, and this applies especially to Theatre Art majors, students who take courses in theatre will be expected as part of their course work to participate in productions by the Clark University Players Society and by the Fenwick Theatre at Holy Cross. Fenwick Theatre has enlisted a semi-professional company, Entr'Actors Guild, Inc., to act and work with students in producing the major season of five or six plays. Consequently, the annual season in Fenwick Theatre serves several purposes. It provides the students and residents of the Worcester area with theatrical productions of high quality. It also serves as a laboratory where students of Theatre Art and other interested persons may learn the arts and skills of the theatre. Finally, it is a showcase where students of the theatre, after they have developed sufficiently through their course work, may practice their art for a discerning public.

All students and faculty of the colleges participating in the program (Clark, Holy Cross, and Assumption) may apply for acting and technical positions in plays of the annual season at Fenwick Theatre. Other persons may do so by permission of Mr. Edward Herson, Director of the Fenwick Theatre, and the director of the play for which they apply.

*Registration in any course in Theatre Art may be made only by permission of the instructor.* Clark students who wish to take courses in the field should first apply to Mr. Schroeder of the Department of English at Clark. Entering freshmen who plan to take courses should see Mr. Schroeder before they register for their first year.

Many of the courses in the program will be offered on other campuses. In most cases, transportation will be supplied by the Worcester Consortium Bus.

The Theatre Art major is designed around a core curriculum of basic courses with two sequences of advanced courses — one for potential actors and one for potential stage designers. Within the acting sequence allowance is made for qualified students to choose two semester courses in advanced directing.

*Core Curriculum.* All Theatre Art majors must take the following courses, preferably before their junior year: Theatre Art 10, 12, 13, and 14. In addition, all majors must take at least two of the following: Theatre Art 151, 152, and 153.

*Advanced Courses: Acting Sequence.* Normally, acting majors will complete their program by taking four additional courses in acting, usually including Theatre Art 113, 115, and 116.

Especially qualified students who wish to gain training in advanced directing may, with the permission of the instructor, substitute Theatre Art 145 and 146 for Theatre Art 115 and 116.

*Advanced Courses: Design Sequence.* Normally, design majors will complete their program by taking Theatre Art 130, 133, and 134. It should be noted that there is a Fine Arts prerequisite for these courses which may be taken at any qualified school. This prerequisite will not be included among the student's major courses, but it will be included among his related courses. In exceptional cases the prerequisite may be waived.

*Related Courses.* All Theatre Art majors must take at least twenty hours of courses in related fields as follows:

1. Twelve or more hours of dramatic literature. All majors should take as many courses in dramatic literature as possible.
2. Three hours, preferably more, in history of art.
3. Any selection from the following: English, comparative literature, philosophy, fine arts, music, and in some cases, certain courses in psychology as approved by the student's adviser.

*Courses Outside the Major and Related Fields.* All Theatre Art majors must take at least thirty-six hours of courses outside the major and related fields as enumerated above. All students who plan to pursue graduate study in the theatre are advised to gain proficiency in at least one, and preferably two, modern foreign languages.

Any student who plans to go on to graduate or professional work in theatre should acquire as much professional experience as possible through participation in summer stock or similar activities.

## COURSES

### 10a. BASIC ACTING SKILLS I.

Study and intensive practice in the basic techniques of producing good voice and speech. Practice in the proper formation of the sounds of English and correction of regional accent. Laboratory in stage movement. Taught at Holy Cross.

*Three semester hours.*

Mr. Ilko.

### 11b. BASIC ACTING SKILLS II.

Further development of the techniques learned in Theatre Art 10a. Elementary work in the interpretation of a role. Taught at Holy Cross. Prerequisite: Theatre Art 10a.

*Three semester hours.*

Mr. Ilko.

### 12a. BASIC TECHNICAL THEATRE PRACTICE.

Classroom instruction in the theories and techniques of the building, painting, and lighting of stage settings; the organization and operation of production crews; and the fundamentals of make-up. Laboratory hours to be arranged. Taught at Holy Cross.

*Three semester hours.*

### 13a. INTRODUCTION TO STAGE DESIGN: THEORY.

A course intended to acquaint the general student with the basic steps involved in the creation of stage settings, including a discussion of design methods such as ground plan, compositional elevation, color theory, and stage lighting. Taught at Holy Cross.

*Three semester hours.*

### 14a. INTRODUCTION TO PLAY DIRECTION.

Study of the writings, both theoretical and practical, of prominent directors, followed by practice in classroom exercises or laboratory studio productions of the basic techniques of play selection, casting, scheduling and conducting rehearsals, composition, picturization, movement, rhythm, and pantomimic dramatization. Taught at Holy Cross.

*Three semester hours.*

Mr. Herson.

**15a. INTRODUCTION TO THE THEATRE.**

A course designed to introduce the non-specialist to the literature and techniques of the theatre. Designed each year around a topic which will be announced at the time of registration. Taught at Holy Cross.

*Three semester hours.*

**88. DIRECTED READINGS.**

*Variable credit.*

Staff.

**111b. ORAL INTERPRETATION OF LITERATURE.**

A course in the theory and practice of interpreting the meaning of the printed word through development of skill in the oral reading of poetry and drama. Taught at Holy Cross.

*Three semester hours.*

Mr. Herson.

**112. IMPROVISATIONS FOR THE THEATRE.**

A graduated system of problems and theatre games designed to train the student to free himself for concentration and spontaneous effort to create a situation imaginatively and to play a role in it. Taught at Holy Cross. Prerequisite: Basic Acting Skills I.

*Three semester hours.*

**113a. STYLES OF ACTING.**

Analysis of the practice of the actor's art from the Greeks to the present and of the historical, social, and aesthetic causes of the various styles. Each student will be required to perform, and possibly direct, in each of the principal styles as well as submit papers on a chosen specialty. Taught at Holy Cross. Prerequisite: Theatre Art 10a and 11b.

*Three semester hours.*

Mr. Ilko.

**115b. SCENE STUDY I.**

Practice to the level of class performance of roles in scenes and one-act plays. Assigned research, and analysis of a major role scene by scene. Taught at Holy Cross. Prerequisite: Theatre Art 11b, 113a, and consent of instructor.

*Three semester hours.*

Mr. Ilko.

**116b. SCENE STUDY II.**

Preparation of scenes for class and/or laboratory performance and criticism. Each student will keep a written record of the materials and techniques used in preparing the roles he plays and a critical diary of rehearsals, performances, and class evaluations of performance. Taught at Holy Cross. Prerequisite: Theatre Art 115b and consent of instructor.

*Three semester hours.*

Mr. Ilko.

**130b. INTRODUCTION TO STAGE DESIGN: TECHNIQUE.**

An introductory course exclusively for students who have a strong interest in the visual aspects of production and are planning to continue the study of stage design. The student will be expected to master the fundamentals of mechanical perspective and other scenographic techniques such as ground plans, working drawings, and light plots for the stage. Taught at Holy Cross. Prerequisite: Theatre Art 13a; at least one course in drawing and painting, which may be taken simultaneously with the course, and/or submission of sketches or similar materials which demonstrate some talent in the graphic arts.

*Three semester hours.*



**133b. HISTORICAL STYLES OF STAGE DESIGN.**

Problems will be selected classics of dramatic literature representing important periods in theatre history. The student will be expected to expand his knowledge of the theatre, art, and architecture of these periods and, from that knowledge, evolve a stage design for a modern production of each play assigned. Taught at Holy Cross. Prerequisite: Theatre Art 130b, one semester of art history, and one semester of theatre history.

*Three semester hours.*

**134b. THEATRICAL STYLES OF STAGE DESIGN.**

Problems will include different types of theatrical entertainment such as opera, ballet, modern dance, musical comedy, and circus. Projects from this course should exhibit the designer's ability and versatility and provide a portfolio of sketches required for admission to graduate study in theatrical design. Taught at Holy Cross. Prerequisite: Theatre Art 130b.

*Three semester hours.*

**145a. ADVANCED PLAY DIRECTION I.**

Special topics and problems in the theory and practice of play directing. Taught at Holy Cross. Prerequisite: Theatre Art 14a and consent of instructor.

*Three semester hours.*

Mr. Herson.

**146b. ADVANCED PLAY DIRECTION II.**

A continuation of Advanced Play Direction I, but the course need not be taken in the semester immediately following Advanced Play Direction I. Taught at Holy Cross. Prerequisite: Theatre Art 14a and consent of instructor.

*Three semester hours.*

Mr. Herson.

**151a. THEATRE IN WESTERN CIVILIZATION I:**

THEATRE FROM THE GREEKS TO THE RENAISSANCE.

**152b. THEATRE IN WESTERN CIVILIZATION II:**

THEATRE OF THE EIGHTEENTH AND NINETEENTH CENTURIES IN EUROPE.

**153a. THEATRE IN WESTERN CIVILIZATION III:**

THE AMERICAN THEATRE; MODERN AND CONTEMPORARY THEATRE.

A three-semester sequence of courses which surveys Western theatre from its development in early Greece to the present. Included will be a study of types of theatres, techniques of theatre architecture, and the methods, techniques, and results of stage design and costume in their historical context; a survey of acting, directing, and production methods and their interaction with the audience; the emergence of the national theatres of Western civilization and their historical and cultural significance; and a survey of the major eras of dramatic literature and criticism as well as other theatrical genres (mime, ballet, opera, etc.). Taught at Clark.

*Three semester hours each semester.*

Mr. Schroeder.

**165a. FRENCH THEATRE PRODUCTION I.**

A course designed to provide direct experience of the theatrical synthesis within which the play and the actor operate. Study of the leading theories of the theatre from Diderot to Brecht. Techniques of stage presentation, including directing, acting, stage design, and make-up. Scene study leading to the

presentation of scenes from five French plays in various modes. Lab. fee: \$10.00. Taught at Assumption. Prerequisite: speaking knowledge of French and consent of instructor.

*Three semester hours.*

Mr. Plasse.

**166b. FRENCH THEATRE PRODUCTION II.**

Brief history of the great directors and actors of the French stage from Les Basochiens to Jean-Louis Barrault. Historical and critical study in depth of two French plays to culminate in their production. Lab. fee: \$10.00. Taught at Assumption. Prerequisite: speaking knowledge of French and Theatre Art 165a or consent of instructor.

*Three semester hours.*

Mr. Plasse.



## Faculty

Members of the faculty and officers of instruction for 1971-72 are listed alphabetically with their titles, degrees and years at Clark University. Persons no longer on the faculty but who served during the previous year are included also.

### *President*

GLENN W. FERGUSON, J.D., President and Adjunct Professor of Government. B.A., Cornell University, 1950; M.B.A., 1951; J.D., University of Pittsburgh, 1957. (1970- )

### *Emeriti*

HOWARD B. JEFFERSON, Ph.D., LL.D., L.H.D., Litt.D., President, Emeritus; A.B., Denison University, 1923; Ph.D., Yale University, 1929; LL.D., Denison University, 1948, Hillsdale College, 1952, Northwestern University, 1958; L.H.D., Colgate University, 1951, Assumption College, 1956; Litt.D., College of the Holy Cross, 1962; L.H.D., Clark University, 1967; LL.D., Emerson College, 1968. (1946-67)

JESSE L. BULLOCK, Ph.D., Professor of Chemistry, Emeritus. (1926-59)

GUY H. BURNHAM, A.M., Instructor in Geography and Cartographer, Emeritus. (1922-66)

LYDIA P. COLBY, B.S., Registrar, Emeritus. (1932-66)

GEORGE E. HARGEST, M.B.A., Associate Professor of Economics, Emeritus. (1942-71)

ROBERT S. ILLINGWORTH, A.M., Ed.M., Professor of Speech and Drama, Emeritus. (1931-58)

FREDERICK W. KILLIAN, LL.B., Associate Professor of Sociology, Emeritus. (1947-70)

VERNON JONES, Ph.D., Professor of Educational Psychology, Emeritus. (1926-68)

H. DONALDSON JORDAN, Ph.D., L.H.D., Professor of English History, Emeritus. (1931-67)

DWIGHT E. LEE, Ph.D., L.H.D., Jacob and Frances Hiatt Professor of European History, Dean of the Graduate School, Emeritus. (1927-67)

JAMES A. MAXWELL, Ph.D., L.H.D., Professor of Economics, Emeritus. (1924-67)

RAYMOND E. MURPHY, Ph.D., Professor of Economic Geography, Emeritus. (1946-68)

THEODORE NICOL, Ph.D., Associate Professor of Romance Languages, Emeritus. (1946-69)

PERCY M. ROOPE, Ph.D., Professor of Physics, Emeritus. (1921-62)

SAMUEL VAN VALKENBURG, Ph.D., LL.D., Professor of Geography, Emeritus. (1927-29, 1932-62)

### *Faculty and Officers of Instruction*

DAVID J. ABESHOUSE, Ph.D., Assistant Professor of Physics (part-time). B.S., Massachusetts Institute of Technology, 1962; Ph.D., Boston University, 1970. (1971)

VERNON AHMADJIAN, Ph.D., Professor of Botany, Associate Dean of the Graduate School. A.B., Clark University, 1952; A.M., 1956; Ph.D., Harvard University, 1960. (1959-68; 1969- )

HARRY C. ALLEN, JR., Ph.D., Professor of Chemistry, Chemistry Department Chairman. B.S., Northeastern University, 1948; Sc.M., Brown University, 1949; Ph.D., University of Washington, 1951. (1969- )



- JAMES D. ANDERSON, M.A., Lecturer in Romance Languages. B.A., Brooklyn College, 1957; M.A., Florida State University, 1959. (1971- )
- JEREMY ANDERSON, Ph.D., Associate Professor of Geography. A.B., Yale University, 1956; M.A., University of Washington, 1959; Ph.D., 1964. (1966-71)
- KARL O.E. ANDERSON, Ph.D., Professor of English. A.B., Harvard University, 1927; A.M., 1928; Ph.D., 1942. (1945- )
- ROY S. ANDERSON, Ph.D., Professor of Physics, Dean of the Graduate School. A.B., Clark University, 1943; A.M., Dartmouth College, 1948; Ph.D., Duke University, 1951. (1960- )
- KARL J.R. ARNDT, Ph.D., Professor of German. A.M., Washington University, 1928; Ph.D., The Johns Hopkins University, 1933. (1950- )
- DONALD BACON, Ph.D., Assistant Professor of English. B.A., Harvard College, 1962; B.A., Wadham College, Oxford University, 1964; Ph.D., Harvard University, 1970. (1969-71)
- ROBERT W. BAKER, Ph.D., Professor of Psychology. A.B., Hobart College, 1947; Ph.D., Clark University, 1953. (1954- )
- GEORGE A. BALKO, JR., M.B.A., Assistant Professor of Business Administration. M.E., Stevens Institute of Technology, 1947; M.B.A., New York University, 1952. (1956- )
- RAYMOND E. BARBERA, Ph.D., Professor of Romance Languages. A.B., Brooklyn College, 1947; A.M., University of Arizona, 1948; Doctor en Letras, Universidad Nacional de Mexico, 1949; Ph.D., University of Wisconsin, 1958. (1953- )
- CLAUDE W. BARLOW, Ph.D., Professor of Classics. A.B., Amherst College, 1928; A.M., Indiana University, 1930; Ph.D., Yale University, 1935. (1947- )
- PETER M. BARNETT, M.A., Instructor in Fine Arts. M.A., Harvard University, 1965. (1970- )
- STEPHEN BARON, Ph.D., Assistant Professor of Mathematics. B.A., McGill University, 1959; M.S. Rensselaer Polytechnic Institute, 1962; Ph.D., McGill University, 1967. (1968- )
- TILTON M. BARRON, B.L.S., Librarian. A.B., Colorado College, 1937; B.L.S., Columbia University School of Library Service, 1940. (1954- )
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# Academic Calendar

## 1971

|                               |                                                 |
|-------------------------------|-------------------------------------------------|
| <i>Wednesday, September 8</i> | Registration.                                   |
| <i>Thursday, September 9</i>  | Classes begin.                                  |
| <i>Monday, November 1</i>     | Mid-Semester reports due.                       |
| <i>Friday, November 19</i>    | Thanksgiving recess begins at close of classes. |
| <i>Monday, November 29</i>    | Thanksgiving recess ends at 8:30 a.m.           |
| <i>Friday, December 17</i>    | End of first semester classes.                  |
| <i>Monday, December 20</i>    | Semester examinations begin.                    |
| <i>Thursday, December 23</i>  | Semester examinations end.                      |

## 1972

|                              |                                          |
|------------------------------|------------------------------------------|
| <i>Monday, January 3</i>     | January Term begins.                     |
| <i>Wednesday, January 26</i> | January Term ends.                       |
| <i>Monday, January 31</i>    | Second semester registration.            |
| <i>Tuesday, February 1</i>   | Classes begin.                           |
| <i>Friday, March 24</i>      | Spring recess begins.                    |
| <i>Monday, April 3</i>       | End of Spring recess 8:30 a.m.           |
| <i>Friday, May 12</i>        | Second semester classes end at 5:00 p.m. |
| <i>Monday, May 15</i>        | Semester examinations begin.             |
| <i>Thursday, May 18</i>      | Examinations end.                        |
| <i>Sunday, May 28</i>        | Commencement Day.                        |

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CALENDAR 1971

| SEPTEMBER 1971 |    |    |    |    |    |    | OCTOBER 1971 |    |    |    |    |    |    | NOVEMBER 1971 |    |    |    |    |    |    | DECEMBER 1971 |    |    |    |    |    |    |
|----------------|----|----|----|----|----|----|--------------|----|----|----|----|----|----|---------------|----|----|----|----|----|----|---------------|----|----|----|----|----|----|
| S              | M  | T  | W  | T  | F  | S  | S            | M  | T  | W  | T  | F  | S  | S             | M  | T  | W  | T  | F  | S  | S             | M  | T  | W  | T  | F  | S  |
|                |    |    | 1  | 2  | 3  | 4  |              |    |    |    |    | 1  | 2  |               |    |    |    |    |    |    |               |    |    | 1  | 2  | 3  | 4  |
| 5              | 6  | 7  | 8  | 9  | 10 | 11 | 3            | 4  | 5  | 6  | 7  | 8  | 9  | 7             | 8  | 9  | 10 | 11 | 12 | 13 | 5             | 6  | 7  | 8  | 9  | 10 | 11 |
| 12             | 13 | 14 | 15 | 16 | 17 | 18 | 10           | 11 | 12 | 13 | 14 | 15 | 16 | 14            | 15 | 16 | 17 | 18 | 19 | 20 | 12            | 13 | 14 | 15 | 16 | 17 | 18 |
| 19             | 20 | 21 | 22 | 23 | 24 | 25 | 17           | 18 | 19 | 20 | 21 | 22 | 23 | 21            | 22 | 23 | 24 | 25 | 26 | 27 | 19            | 20 | 21 | 22 | 23 | 24 | 25 |
| 26             | 27 | 28 | 29 | 30 |    |    | 24           | 25 | 26 | 27 | 28 | 29 | 30 | 28            | 29 | 30 |    |    |    |    | 26            | 27 | 28 | 29 | 30 | 31 |    |
|                |    |    |    |    |    |    | 31           |    |    |    |    |    |    |               |    |    |    |    |    |    |               |    |    |    |    |    |    |

CALENDAR 1972

| JANUARY 1972 |    |    |    |    |    |    | FEBRUARY 1972 |    |    |    |    |    |    | MARCH 1972 |    |    |    |    |    |    | APRIL 1972 |    |    |    |    |    |    |
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CALENDAR 1973

| JANUARY 1973 |    |    |    |    |    |    | FEBRUARY 1973 |    |    |    |    |    |    | MARCH 1973 |    |    |    |    |    |    | APRIL 1973 |    |    |    |    |    |    |
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| SEPTEMBER 1973 |    |    |    |    |    |    | OCTOBER 1973 |    |    |    |    |    |    | NOVEMBER 1973 |    |    |    |    |    |    | DECEMBER 1973 |    |    |    |    |    |    |
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# Clark

UNIVERSITY  
BULLETIN

1972-73  
GENERAL  
CATALOG

The New England Association of Colleges and Secondary Schools accredits schools and colleges in the six New England states. Membership in one of the six regional accrediting associations in the United States indicates that the school or college has been carefully evaluated and found to meet standards agreed upon by qualified educators. Colleges support the efforts of public school and community officials to have their secondary school meet the standards of membership.

August, 1972    Number 319

The Clark University Bulletin is published four times a year, in April,  
July, August and September  
Second-class postage paid at Worcester, Massachusetts.



# a glimpse of clark university



"Almost unconsciously you develop an attachment to Clark... a place where largely you set your own challenge."

Jonathan Hart, '74  
Editor-in-Chief  
*Scarlet*



# the university

As a liberal arts university, Clark attempts to provide the intellectually-serious undergraduate with an atmosphere wholly conducive to the pursuit and acquisition of knowledge. Clark emphasizes the development of the student's analytical abilities, regardless of his or her field of study. Yet, the high quality of education in a variety of fields, including the natural sciences, geography and psychology, is recognized internationally.

Clark was founded in 1887 as the nation's second formal graduate school. The undergraduate college, added in 1902, has been heavily influenced from the start by the academic values of the parent graduate institution. Many Clark faculty members are attracted to the University by the national and international reputations of various academic departments and the knowledge that, in general, faculty members have the opportunity to pursue their individual research interests and also can enjoy the stimulation of teaching on the undergraduate level. More than 85 per cent of the 138 faculty members have their doctoral degrees, one of the highest percentages in the nation.

Clark, with an undergraduate enrollment of 1,750 and a graduate enrollment of 350, combines the qualities of a coeducational liberal arts college with the elements of a small but excellent graduate school, in an attempt to offer undergraduates a broad education as well as in-depth training in a particular field.

The serious, intellectual tone of the institution, emphasizing research in frontier areas as well as high-quality teaching, was set by Clark's founding president, Dr. G. Stanley Hall. Dr. Hall was a prominent psychologist and among his early faculty were such men as Albert A. Michelson in physics, who later became the first American to win a Nobel Prize, and Franz Boas, under whom the first American Ph.D. in anthropology was granted in 1892. Concentrating at first in the natural and experimental sciences, the University soon began to emphasize psychology and education, and in its first 25 years Clark awarded more doctorates in psychology than any other institution. In 1921 a Graduate School of Geography was established, and today more people hold Ph.D.'s in that field from Clark than from any other American university.

A tradition of intensive scholarly investigation into seemingly offbeat but often highly significant phenomena evolved at Clark under such diverse scholars as George Hubbard Blakeslee, a pioneer in international relations and peace research; Charles Kraus, chemist who discovered the first commercially feasible method of making tetraethyl lead; the physicist Robert H. Goddard, developer of the first liquid-fuel rocket and "Father of the Space Age;" Ellen Churchill Semple, pioneer

historical geographer, and the psychologist Heinz Werner, leading American exponent of the organismic-developmental approach to human behavior. The traditions of research left behind by these investigators remain very much alive in the various academic departments, most of which have taken steps to involve able undergraduates in diverse research activities. The research and instructional activities of the University have historically been supplemented by frequent lectures and conferences of visiting scholars, American and foreign, such as the famous Twentieth Anniversary conference in 1909 which brought Sigmund Freud to America, and the Werner lectures in psychology, the Bland-Lee lectures in history and the Harrington lectures in public affairs, all conducted at the present time.

The founder of the University, Jonas G. Clark, a retired merchant of Worcester, envisioned a college for poor boys drawn from rural and small-town New England. Under his will a three-year undergraduate degree program was established in 1902, although this was lengthened to four years in the 1920s. Clark College, initially quite small, gradually increased in size and became coeducational in 1942. An Evening College, offering both degree and general enrichment programs, was founded in 1953.

Today, Clark's 1,750 undergraduates come from all parts of the United States and from several foreign countries, although more than half of the student body is from the Northeastern United States. In the recent past most Clark students have come from middle and upper-middle class families, but the University has made a concerted effort in the last few years to recruit qualified minority students and students from lower economic levels. In addition, a greater number of foreign students will be at Clark in the future thanks to additional scholarship funds made available in 1972 for this purpose.

Students at Clark, which is private and unaffiliated with any group or religion, live in an academically, socially and politically unrestricted atmosphere. The rights of the individual are cherished, but the burden of responsibility for academic performance and social behavior is placed on the individual. Dormitory policies are set by dorm members, there are no course requirements except those set by departments for majors, students may design their own major and there are no University class attendance requirements. Because Clark has graduate programs and is relatively small, it provides opportunity for undergraduate students — especially the better ones — to study and work with master's and doctoral candidates in graduate level courses and to have reasonably close contact with professors, sometimes including involvement with them in advanced scholarly and research activities. "Relative smallness," however, does not mean that all classes are small, or that close, everyday contact between undergraduate student and professor is the rule. A few introductory-level classes have up to 200 students, and not



all faculty are readily accessible to all students. But classes tend to become smaller, and sometimes quite small, at the upper levels, and most faculty welcome interchange with academically interested and able students.

Various student-faculty-administration committees have been studying a variety of curriculum changes in the last two years with the result that the 1972-73 academic year contains a number of new or revised courses and programs. They include:

- *Technology and Man*. An interdisciplinary program developed in the Physics Department, Technology and Man is designed to train students to deal with policy questions on the use and misuse of science and technology through courses in both the sciences and social sciences.

- *Visual and Performing Arts*. This is a new department, encompassing music, fine arts, theatre art and film. The film program is entirely new to the University and offers courses designed to provide an understanding of two related activities: 1) the viewing, discussion and evaluation of a large number of significant works, and 2) initial attempts, through simple film and/or video production exercises, to express oneself in a technically demanding medium.

- *Foreign Languages and Literatures*. This is another new department incorporating classics, comparative literature, French, German, Hebrew, Italian, Russian and Spanish. In addition to language and literature courses taught in the foreign languages themselves, instruction is offered in foreign literature in English translation.

- *Jewish Studies*. This program, in its second, expanded year in 1972-73, includes the following courses which are described in the Foreign Languages and Literatures Department section: Elementary Modern Hebrew; Intermediate Modern Hebrew; Hebrew Scriptures – Pentateuchal and Historical Books; Hebrew Scriptures – Prophetic and Wisdom Literature; American Jewish Literature of Survival, 1850 to the present; Modern Hebrew Literature in English Translation, and The Literature of Modern Israel in English Translation. The program also includes a history course described in the History Department section, Jewish Social and Intellectual History since 1870.

- *Government-International Relations*. This department is reorganizing its curriculum to meet the changed requirements of political science and its students. Particular attention will be paid in 1972-73 and 1973-74 to three areas: 1) restructuring the undergraduate major to include freshman-sophomore seminars, junior tutorials and senior independent projects; 2) developing an undergraduate urban studies major which would complement the present graduate program in International Urbanization and Public Policy; and 3) developing a permanent committee system to support curriculum development, program evaluation and interdepartmental liaison.

● *Sociology.* This department also is revising its curriculum, with heavy emphasis on the practical application of the theories taught in the sociology classroom. A variety of possibilities are under consideration for students and faculty to work in the community, both as observers of various social situations and as agents of change in the context of social problems.



"Clark . . . offers many unlimited opportunities to any student who takes advantage . . . of the resources . . . unfortunately many students . . . do little to extend themselves beyond the classroom. Clark has the potential for great things but . . . all parts . . . (must) work together to propel Clark ahead."

Geoff Steinberg, '73  
Student Council  
President



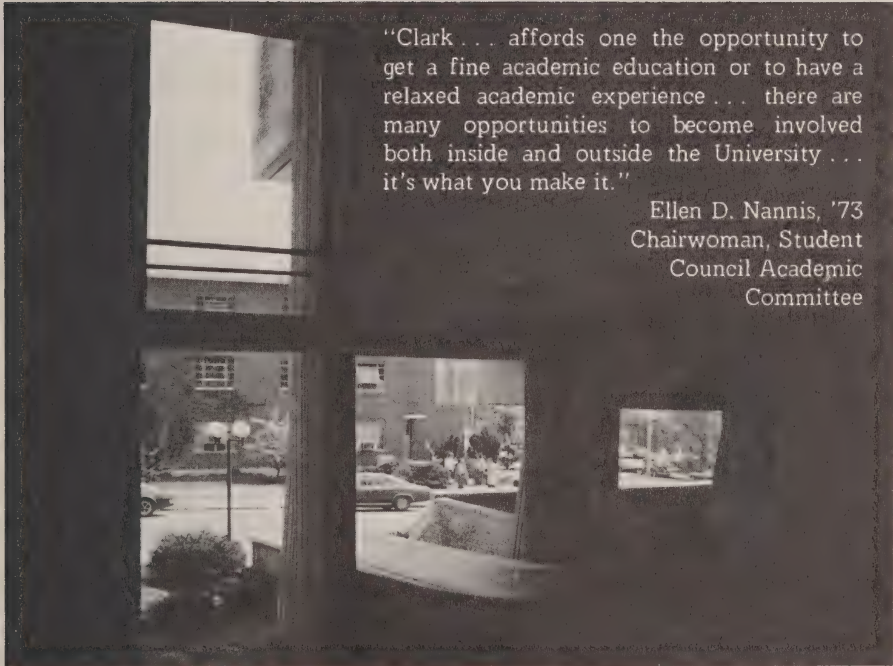
# the community

A primary attraction of Worcester, Massachusetts to both students and faculty at Clark are the many opportunities for community work. Unlike larger cities such as Boston or New York, Worcester offers to student community volunteers the chance to see the results of their work. Worcester, with a population of about 180,000, is primarily a manufacturing city, which is reflected in the fact that much of the population consists of skilled and semi-skilled workers. There are, however, a large number of white-collar employees of several large insurance companies which have their home offices in the city.

In addition, Worcester and surrounding towns contain 11 colleges and universities: Anna Maria College, Assumption College, Clark, Holy Cross College, Worcester Polytechnic Institute, Worcester State College, University of Massachusetts Medical School and Becker, Leicester, Quinsigamond and Worcester Junior Colleges. The colleges are bound together by the Worcester Consortium for Higher Education, and students may participate in a variety of educational, social and cultural activities provided by the Consortium, including enrollment at any member institution. Associate members of the Consortium include the Worcester Art Museum, known internationally as one of the finest small museums in America; Worcester Historical Society and American Antiquarian Society, whose facilities are employed by Clark history students; Worcester Foundation for Experimental Biology, the institution, founded by Clark faculty, known worldwide for its role in developing the birth control pill; Worcester Craft Center; Old Sturbridge Village, a recreation of a Colonial New England town, and Worcester Science Center. These Consortium institutions, as well as other groups in the Worcester area, provide a large number of cultural events in the course of a year, including the Worcester Music Festival, a large variety of theatrical presentations, concerts, dance events and lectures. In the last several years Worcester has devoted itself to a massive redevelopment program which has greatly improved the center of the city. Outside of Worcester, the Clark student may avail himself of the cultural opportunities of Boston, less than an hour away by car, as well as the beautiful New England countryside with its many historical sites, nearby ski slopes and summer recreational areas.

Most Clark students find themselves sometime during their four years participating in one of many community-oriented programs, some through a course, some through an organized volunteer basis, some on an individual basis. A partial listing of community involvement by students — undergraduate and graduate — includes a free breakfast program for Worcester children; work in several day care centers; volunteer work in Worcester's Model Cities program; tutoring; geography and sociology field work with a variety of organizations,

including a neighborhood center near Clark known as Your Place; participation in a high school-age drop-in center on campus; student teaching; and the University's Little League team. In addition, a group known as SPUD – Student Program for Urban Development – was formed in 1968 by Worcester area college students to coordinate the potential college volunteer population of the various Worcester colleges.



"Clark... affords one the opportunity to get a fine academic education or to have a relaxed academic experience... there are many opportunities to become involved both inside and outside the University... it's what you make it."

Ellen D. Nannis, '73  
Chairwoman, Student  
Council Academic  
Committee

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## Additional Information

Persons interested in more information about Clark University should address the appropriate officer of administration listed below:

|                                       |                                                                    |
|---------------------------------------|--------------------------------------------------------------------|
| <i>General University Affairs:</i>    | Dr. Glenn W. Ferguson<br>President                                 |
| <i>General Academic Affairs:</i>      | Dr. Alan E. Guskin<br>Provost                                      |
| <i>Undergraduate Student Affairs:</i> | Dr. Marcia A. Savage<br>Dr. William E. Topkin<br>Deans of Students |
| <i>Admission to the College:</i>      | Mr. Richard W. Pierson<br>Director of Admissions                   |
| <i>Faculty Affairs:</i>               | Dr. Robert W. Baker<br>Chairman of the Faculty                     |
| <i>Financial Aid:</i>                 | Mr. Robert M. Kidd<br>Director of Financial Aid                    |
| <i>Graduate School Affairs:</i>       | Dr. Vernon Ahmadjian<br>Dean of the Graduate School                |
| <i>Evening College Affairs:</i>       | Mr. Thomas J. Dolphin<br>Director                                  |
| <i>Summer School Affairs:</i>         | Mr. Robert J. Smith<br>Director                                    |
| <i>Alumni Affairs:</i>                | Ms. Catherine D. Schlater<br>Interim Director                      |
| <i>Records and Transcripts:</i>       | Mr. Gerard T. Corcoran<br>Registrar                                |
| <i>University Address:</i>            | 950 Main Street<br>Worcester, Massachusetts 01610                  |
| <i>University Telephone:</i>          | Area Code 617<br>Telephone 793-7711                                |

Clark University reserves the right to amend any administrative policy described in this Catalog without prior notice to persons who might thereby be affected. Information about expenses applies to the 1972-73 academic year.



## General Information

|                                          |                                                                                                                                                                                                                          |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Corporate Name:</i>                   | Trustees of Clark University                                                                                                                                                                                             |
| <i>President:</i>                        | Dr. Glenn W. Ferguson                                                                                                                                                                                                    |
| <i>Incorporation:</i>                    | 1887                                                                                                                                                                                                                     |
| <i>Function:</i>                         | Independent university of liberal arts<br>for men and women                                                                                                                                                              |
| <i>Degrees Conferred:</i>                | Bachelor of Arts<br>Bachelor of Fine Arts<br>Bachelor of Science in General Studies<br>Master of Arts<br>Master of Arts in Education<br>Master of Business Administration<br>Doctor of Education<br>Doctor of Philosophy |
| <i>Undergraduate<br/>Day Enrollment:</i> | 1,750                                                                                                                                                                                                                    |
| <i>Faculty:</i>                          | 138 Fulltime                                                                                                                                                                                                             |
| <i>Endowment:</i>                        | Book Value: \$9,763,000<br>Market Value: \$13,028,000                                                                                                                                                                    |
| <i>Library:</i>                          | 312,000 volumes<br>50,000 maps and charts                                                                                                                                                                                |



Dr. Glenn W. Ferguson  
President of the University

# THE UNDERGRADUATE COLLEGE



"Problems, racial and personal, are dealt with personally by faculty and administrators who are interested in your opinion. Many students become truly dedicated to causes that work for the betterment of society."

Zyona D. Brabham, '75  
Chairman, Black  
Student Union

## The Academic Programs

### *Departmental Majors*

A student may major in biology, chemistry, economics, English, geography, German, government — international relations, history, mathematics, music, philosophy, physics, psychology, Romance languages, or sociology. A new interdepartmental major in technology and man will also be available beginning with the 1972-73 academic year. A major in fine arts is offered through a cooperative program with the School of the Worcester Art Museum. A major in theatre art is offered through a coordinate program sponsored by Clark University, Holy Cross College, and Assumption College. Courses in classics, comparative literature, education, film studies, geology, and Russian are offered, but departmental majors are not available.

### *Student- Designed Majors*

Any student can design his own major which focuses on a systematic body of knowledge not within the bounds of existing majors or departments. The student, with the advice of an advisory committee of three faculty members, will establish the major program which must then be approved by the Undergraduate Academic Board. Such majors must include a balance between upper and lower division courses and must be approved no later than the start of the second semester of the junior year. The senior year includes the satisfactory completion of some specific work (*e.g.*, senior thesis, an internship experience, senior tutorial) intended to integrate courses in the major and to demonstrate accomplishment. Nine student-designed majors were approved during the 1971-72 academic year with *foci* such as environmental behavior and psychology, general science, music and dance, urban studies, urban planning, preschool education in the community, history of western civilization with a Jewish history concentration, and women's studies.

### *Orientation*

Freshmen and transfer students must attend an orientation program held on the campus for several days before the academic year begins. During this period, placement examinations are given and opportunities are provided for students to attend individual and group meetings with faculty and other students in preparation to register for a program of studies and familiarize themselves with Clark and Worcester communities.

At orientation and during the freshman year, students are provided the opportunity to meet in groups and individually with faculty members in order to obtain advice regarding course program and related matters. A particular faculty adviser may be assigned upon request. Toward the end of the freshman year students are asked to indicate intended major and their preference for adviser from the major department, and advising responsibility at that point is assumed primarily by the various academic departments. Ample opportunities for academic and other advice are available for those students seeking it.

*Academic  
Advising*

Every student registers for a specific number of courses at the start of every semester. Notification of the dates Registration occurs is given in advance; failure to register within the announced period occasions a late registration fee.

*Registration*

Placement in advanced courses is determined by individual performance on special departmental placement examinations or, in some instances, on the Advanced Placement and Achievement Tests of the College Entrance Examination Board. College credit for certain courses completed in high school may also be granted toward the bachelor's degree on the basis of the College Entrance Examination Board Advanced Placement Tests.

*Advanced  
Placement*

The undergraduate normally carries a full program of from 12 to 20 semester hours inclusive each semester. In general, a course meets three times weekly. Laboratory periods are usually three hours long. Students should consult their faculty adviser or major department when questions of course or program selection arise. Permission to carry a reduced or expanded program must ordinarily be secured from the College Board.

*Normal  
Programs*



*Undergraduate  
Programs*

Freshmen and sophomores may choose any course designated by the department as open to them.

Freshmen and sophomores are admitted to courses designated by numbers beginning with the numeral 2 only with permission of the instructor and the department chairman concerned, to whom the student must present evidence of high class standing and/or adequate preparation.

Juniors and seniors may elect any courses designated by numbers beginning with 1 or 2, indicating courses which are primarily for undergraduates or for advanced undergraduates and graduate students. The selection by juniors and seniors of these courses is subject to any conditions stated in the course description.

Undergraduates may be admitted to courses designated by numbers beginning with the numeral 3 (indicating courses which are primarily for graduate students) with the approval of the Dean of the Graduate School.

*January Term*

Along with a number of other institutions, Clark has a three and one-half week term during January. The purpose of this mid-year term is to provide a period when a variety of educational experimentation, personalized instruction, and in-depth academic experiences will take place. These activities are both credited and non-credited, and both on-campus and off-campus courses are appropriate. There is no additional tuition charge for full-time undergraduate and graduate students during January Term. Participation in the January Term is voluntary for undergraduate students but required for graduate students.

Courses offered during the 1972 January Term included such topics as nuclear notions, design of economic learning games, the museum as educational experience, sex differences in student's classroom style, the open classroom, old Norse, hurricane hazard perception study, Aquarius: a computer simulation of urban water resource planning, introduction to practical politics, radical Christianity, calculus textbook writing project, Japanese language and the culture of Japan, technical study of electronic music studio, the idea of justice, contemporary concepts and practices in a mental hospital, radical psychiatry, the physics department circus, avante-garde music and dance, experimental theatre company, comparative study of Jewish drama, perspectives on

modern medicine, Kennedy assassination, workshop in poetry: in here/ out there, and demographic study of the Virgin Islands.

Most departments offer directed readings or special projects courses which may be entered with the permission of the instructor concerned. Directed readings courses comprise a sequence of structural readings on a given topic approved and directly supervised by the instructor. Special projects courses involve independent research by the student on a particular problem, as in laboratory work or field study. Both types of courses are offered for variable credit but not to exceed four semester hours except by petition to the College Board. The number of credits awarded on the basis of work performed is determined at the end of the course. Students may take up to eight semester hours credit in Directed Readings, Special Projects or some combination of the two in a given semester. There is no limit on the total number of such courses which may be counted toward the B.A. degree.

*Directed  
Readings and  
Special  
Projects  
Courses*

A student may earn the Bachelor's degree in less than four academic years through a combination of Advanced Placement credit, an expanded program, credited work during January Term and attendance at Summer Schools.

*Accelerated  
Programs*

Credit toward a degree for study at a summer school other than the Clark Summer School must be approved by the Registrar no later than Registration Day of the following semester. Students are strongly advised to confer with the Registrar prior to taking summer school courses to assure acceptability of credit toward the Clark degree.

*Summer School  
Courses Other  
Than Clark's*

Students who wish to carry more than 20 semester hours within one semester may petition for special permission from the College Board.

*Expanded  
Programs*

Clark participates in the Washington Semester program of the American University in Washington, D.C. Under the program, a small number of superior students may be nominated to attend the program, usually in the junior year, studying United States government in the nation's capital. Though any student may be interested in the program, the

*Washington  
Semester  
Program*

opportunity should be particularly attractive to students majoring in government-international relations, history, economics or sociology. A credit of 15 semester hours is given for the program toward the Bachelor's degree at Clark. Inquiry and application should be made to the chairman of the Department of Government-International Relations.

*Study  
Abroad*

All students are encouraged to integrate study abroad programs into their course of studies at Clark. Through the university's affiliation with the Institute of European Studies, campuses in Vienna, Freiburg, Paris, Nantes, Madrid and Durham are readily accessible to Clark students. For further information and to explore the possibilities of a study abroad program for a summer, one semester or an entire year contact Mr. Schatzberg, Department of Foreign Languages and Literatures.

*Partial  
Programs*

Under special circumstances, students may be permitted by the Deans of Students to register for a semester program of less than 12 semester hours. Such students are designated as part-time students.

*Guest and  
Special  
Students*

The University provides for guest students from other colleges and universities who wish to study at Clark for one or two semesters and for special students who wish to take only a few courses without enrolling as degree candidates. Persons interested should contact the Registrar's Office.

## Requirements for a Bachelor's Degree

*General  
Requirements*

**Course Requirements:** All College regulations concerned with credit toward a degree are expressed in terms of semester hours. In undergraduate courses, a semester hour as a unit of credit normally implies one class meeting of approximately fifty minutes in duration, and one laboratory exercise of two or three hours duration per week or between two and three hours of outside preparation per week, throughout one semester.

The standard course carries four semester hours, but individual courses may be credited at more or less than this standard.

Normally at least one half of the total number of credits required for the Bachelor's degree as well as at least one-half of the total number of credits taken for the fulfillment of the major must be taken at Clark University. Of these the last 32 semester hours must be completed at Clark. Permission for a student to take all or part of these 32 hours during the senior year at another institution may be granted by the College Board.

*Residence*

Clark University is now in the process of moving from a standard five course, fifteen credit load to a standard four course, sixteen credit load. To reflect this change the total number of credits required for graduation will be as follows:

*Total  
Credit  
Requirements*

|                                          |                    |
|------------------------------------------|--------------------|
| Class of 1973                            | 124 semester hours |
| Class of 1974                            | 126 semester hours |
| Class of 1975 and all succeeding classes | 128 semester hours |

Course credit may be obtained at the undergraduate level in the following fields of instruction which, for administrative purposes, are known as "groups."

*Groups*

- Group A. Science and Mathematics:* Biology, chemistry, experimental psychology, mathematics and physics.
- Group B. Social Sciences:* Economics, education, geography, government, history, international relations, linguistics, philosophy, psychology and sociology.
- Group C. Language and Literature:* English, classics, comparative literature, French, German, Hebrew, Italian, Russian and Spanish.
- Group D. Fine Arts:* Art, music, theatre art and film.



*Major Requirements*

Major: A departmental major consists of from forty to fifty-six semester hours chosen from courses designated by the department for the purpose. At least half but no more than three-quarters of these semester hours must be in the major subject; the remaining hours must be in related fields of study as designated by the department. No department may require a student to take more than fifty-six semester hours in the major and related fields, but a student may take more than fifty-six semester hours if he or she meets the other requirements for graduation. A grade point average of at least 2.0 must be attained in at least forty semester hours of courses in the major and related fields.

Mathematics 12 (or 15 or 16) is normally a requirement for all students intending to major in Group A — Science and Mathematics.

*Other Requirements*

Self-designed majors must involve comparable numbers of hours. A student must take and pass courses equaling at least 36 semester hours outside the Group (A, B or C-D) in which he is majoring or alternatively (at the direction of his major department) outside those major and related fields or courses designated for this purpose by his major department and approved by the Undergraduate Academic Board.

## Academic Regulations

*Grades*

Reports on the work of each student are made at the end of each semester. At the time of final registration each full-time student must elect one of two reporting patterns for each of his courses, unless the option has been explicitly restricted for that course. First, the student may elect to receive a letter grade, with or without one of the modifying symbols plus and minus. The grades are A, B, C, and No Record. Second, he or she may elect to receive the symbol P indicating successful completion of the course or No Record. A report of Incomplete may be permitted at the discretion of the Faculty member only when sickness or some other unavoidable circumstance prevents completion of the course.

Every student will have a *grade point average* entered on the permanent record. This average is computed by multiplying the credit in semester hours of each graded course by a grade point or numerical equivalent of the grade for that course, adding the totals, and dividing the result by the total number of semester hours taken by the student on a graded basis during that semester. The grade points used for calculation of the averages are as follows:

|                      |                      |                      |
|----------------------|----------------------|----------------------|
| A <sup>+</sup> = 4.3 | B <sup>+</sup> = 3.3 | C <sup>+</sup> = 2.3 |
| A = 4.0              | B = 3.0              | C = 2.0              |
| A <sup>-</sup> = 3.7 | B <sup>-</sup> = 2.7 | C <sup>-</sup> = 1.7 |

No Record reports do not appear on the permanent record and are not considered in computation of the g.p.a.

A record of incomplete incurred in the first semester must be made up no later than the following April 1; if incurred in the second semester or summer term, it must be made up no later than the following October 15. If a course is not completed within the specified time, the record of incomplete is changed to one of No Record.

The availability of the Pass option in virtually all courses is designed to help minimize the competitive aspects of grading for those who find competition harmful for learning. Some students may wish to elect most of their courses on this basis.

All students should remember that the great majority of graduate and professional schools *have expressed a preference for graded transcripts and encourage applicants to have many graded courses*. Pre-professional students and those for whom graduate school is a goal should exercise caution in employing the Pass option.

*Election  
of the Pass  
Option*

A department may, with the approval of the Undergraduate Academic Board, designate certain courses which may be taken under only one of the two reporting options.

*Restriction  
of Option*

*Reporting  
Grades to  
Outside  
Sources* Unless a student indicates in writing to the Deans of Students that he or she wishes it not to be done in his or her case, information concerning academic performance will be released upon request to high schools attended by the student, to scholarship sources and to prospective employers.

*Withdrawal  
From  
Courses* A student may withdraw from any course at any time during the first four weeks of classes, regardless of the grade thus far attained in that course, providing that, after withdrawal, he or she is carrying no fewer than twelve semester hours.

At any time after the first four weeks of classes and up until two class-weeks before the beginning of the final examination period, the Chairman of the College Board may permit a student to withdraw from a course with no record.

*Course  
Changes* A student may enter a course without special permission, unless such permission is required, anytime up to final registration at the end of the second week of classes. Between the second week and mid-semester the student may enter with the permission of the instructor and without petition.

*Classification  
of Students* All students who have not been required to withdraw at the end of a given semester will be promoted if they have satisfactorily completed the following semester hours:

|                        |              |
|------------------------|--------------|
| To the sophomore class | 24 sem. hrs. |
| To the junior class    | 56 sem. hrs. |
| To the senior class    | 88 sem. hrs. |

*Probation* A student whose accumulated credits at the end of any semester are less than 10, (or less than 8 in the case of a freshman) will be reminded by the Dean that he or she is in jeopardy of being required to withdraw.

*Dismissal* A student may be required to withdraw from the College by failing to complete successfully the following number of credits in two successive semesters:

|          |          |
|----------|----------|
| Freshman | 20 hours |
| Others   | 24 hours |

Final examinations are given at the end of each semester in many College courses. Approximately one week is set aside for each examination period and an attempt is made to distribute the examinations for any individual student throughout this period. Absence from a final examination, except for the most compelling reasons, may result in no record in the course. Other examinations and tests may be given at any time during the semester at the convenience of the instructors.

### *Examinations*

The College has no class attendance requirements. However, instructors have the prerogative of establishing such requirements for their own courses.

### *Class Attendance*

A student who is in good standing may apply to the Deans of Students for a leave of absence, after which he or she may return to the University without formal application for readmission.

### *Leaves of Absence*





## Honors and Awards

### *Departmental Honors*

A student may elect a program leading to a bachelor's degree with honors in a particular subject at the beginning of the junior year and, in some cases, at the beginning of the senior year. Under this plan, the department appoints an honors adviser who assists the student in planning a unified program of courses for the junior and/or senior years. The program may include a maximum of twenty-four semester hours in which the student works with a large measure of independence under the supervision of the adviser. In the senior year, the student must pass a comprehensive examination given by the department.

Students may apply in writing to their major department for permission to take honors work, not later than May 1 in the sophomore year or, in some departments, in the junior year. Department approval is necessary for admission to such work. In exceptional cases and in certain departments, application may be made and admission approved by the department concerned as late as the first two weeks of the senior year but only with consent of the College Board.

Admission to an honors program does not relieve the student from any of the standing regulations. A student's candidacy for honors will be terminated at the end of any semester in which he or she has not maintained a standard satisfactory to the department in which he is doing honors work. If candidacy is terminated for any reason, the amount of credit to be allowed for honors courses will be determined by the College Board in consultation with the major department.

The department may recommend the student's graduation with honors, high honors or highest honors, the recommendation to occur at the conclusion of the honors program.

### *General Honors*

General Course Honors are determined by the College Board on the basis of eight semesters' work. Criteria such as grades, percentage of courses taken on P/NR and graded basis, and number of credit hours at Clark are used for determining the awarding of General Honors.

### *Phi Beta Kappa*

The Society of Phi Beta Kappa, founded at the College of William and Mary in 1776, is dedicated to the recognition and encouragement of

outstanding scholarly achievement in liberal studies. The Clark Chapter, Lambda of Massachusetts, was established in 1953. Each year, a limited number of juniors and seniors are elected to membership on the basis of distinction in programs which are clearly liberal in character, with due consideration of evidence, both formal and informal, of high scholarship and creativity.

*Omicron Delta Epsilon*: National Honor Society in Economics.

*Delta Phi Alpha*: National Honor Society in German.

*Gamma Theta Upsilon*: National Honor Society in Geography.

*Phi Sigma Tau*: National Honor Society in Philosophy.

*Sigma Pi Sigma*: National Honor Society in Physics.

*Psi Chi*: National Honor Society in Psychology.

*Other  
Honorary  
Societies*

## Tuition and Other Charges

Undergraduate tuition, fees and other charges for 1971-72 are listed below. Charges for the Evening College and the Summer School can be found in their respective catalogs. Tuition, fees and other charges for graduate students are listed under the catalog section on The Graduate School.

*General  
Information*

Tuition, board, dormitory charges and certain fees are due and payable prior to the beginning of each semester. (These dates for 1972-73 are *August 14* for the first semester and *January 15* for the second semester.) No one is permitted to register for any semester until all financial obligations have been satisfactorily arranged with the University. A penalty fee is levied for late registration and late payment of charges.

Tuition for each semester is based on a normal program of 12 to 20 semester hours. Students who enroll for less than the normal program are charged at the rate of \$110.00 per semester hour. Excess credit over 20 semester hours will be charged at \$110.00 per semester hour.

*Tuition*

Special students also are charged at the rate of \$110.00 per semester hour.

*Consolidated Fee* Beginning in 1968, the University merged a large number of special fees formerly charged separately for laboratories, matriculation, graduation, etc. into a single uniform consolidated fee of \$25.00 a semester. This fee is charged to all matriculated students regardless of the number of semester hours.

*Refund* Withdrawals are arranged in the Deans of Students Office. A student who officially withdraws in writing during the first week of any semester is allowed a refund of 80 per cent on tuition; during the second week, 60 per cent; during the third week, 40 per cent; during the fourth week, 20 per cent; after the fourth week there is no refund. The Consolidated Fee and Activities Fee are refunded by the same formula. There is no refund on other charges, except board, when a student withdraws from the University.

When a student has left, but not withdrawn from the University on the advice of a doctor within the first four weeks of a semester, and a decision is made later that the student must withdraw, tuition refund is made retroactive to the date of the doctor's recommendation, based on the schedule described above. A detailed statement of the refund policy may be obtained in the General Office.

*Contingency Deposit* All undergraduates are required to pay a \$25.00 deposit to cover minor charges, such as property damage, which may be incurred during the year. They are billed each year for whatever charges are incurred; the balance is refunded upon completion of their studies.

*Dormitory Deposit* A dormitory deposit of \$25.00 is required each spring of upperclassmen to reserve a place in a dormitory. It is credited toward the dormitory charges. The deposit is forfeited if the student does not enroll for the specified semester.

*Student Activity Fee* A fee of \$37.50 per semester, levied and administered by the Student Council, is required of all matriculated undergraduates. It pays for admission to and participation in a wide range of cultural and recreational activities.

|                                                                                                                                                                                                                                                                                                                |                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| A fee of \$15.00 must accompany the application for admission to the College. It is not refundable.                                                                                                                                                                                                            | <i>Application Fee</i>   |
| A deposit of \$200.00 is required of applicants when they accept the University's offer of admission. It is credited toward charges for the first semester. The deposit is forfeited if the student does not enroll for the specified semester.                                                                | <i>Admission Deposit</i> |
| A deposit of \$200.00 is required of all students planning to return to the University for their sophomore, junior or senior years. It is payable by <i>July 1</i> , and is credited toward charges for the fall semester. The deposit is forfeited if the student does not enroll for the specified semester. | <i>Tuition Deposit</i>   |
| Deposit for keys may be required of the student for entrance to buildings, laboratories, personal lockers or mail boxes.                                                                                                                                                                                       | <i>Key Deposit</i>       |
| SUMMARY OF TUITION AND OTHER CHARGES                                                                                                                                                                                                                                                                           |                          |
| Full Program (12 to 20 semester hours) \$1300.00 per semester                                                                                                                                                                                                                                                  | <i>Tuition</i>           |
| \$ 25.00 per semester                                                                                                                                                                                                                                                                                          | <i>Consolidated Fee</i>  |
| \$255.00 to \$330.00 per semester                                                                                                                                                                                                                                                                              | <i>Board</i>             |
| Room rent (single) \$350.00 to \$400.00 per semester                                                                                                                                                                                                                                                           | <i>Dormitory Charges</i> |
| Room rent (double) \$300.00 to \$350.00 per semester                                                                                                                                                                                                                                                           |                          |
| \$37.50 per semester                                                                                                                                                                                                                                                                                           | <i>Activities Fee</i>    |
| Application (undergraduate) \$ 15.00                                                                                                                                                                                                                                                                           | <i>Other Fees</i>        |
| Health and Accident Insurance \$ 33.00 per year                                                                                                                                                                                                                                                                |                          |
| Transcripts \$ 1.00<br>(no charge for first one)                                                                                                                                                                                                                                                               |                          |



|                 |                           |          |
|-----------------|---------------------------|----------|
| <i>Deposits</i> | Admission (Freshmen)      | \$200.00 |
|                 | Tuition (Upperclassmen)   | \$200.00 |
|                 | Dormitory                 | \$ 25.00 |
|                 | Contingency (see page 35) | \$ 25.00 |

*Identification Cards* Identification cards are issued each year to all students without charge. This card is your official college identification and should be carried at all times. Loss should be reported immediately to the Purchasing Office. There is a \$3.00 replacement charge for lost IDs.

# Student Services

*Dining Halls* Dining Halls in Little Commons, Jefferson Hall, and Dana Center are operated for the convenience of students and staff of the University. Service is cafeteria style. The snack bar in Jefferson Hall is open to all members of the Clark community.

*Dormitories* Resident undergraduates may be required to live in University operated dormitory facilities. Residents of each dormitory determine the visiting hours for members of the opposite sex and there are no curfews in any of the dormitories.

*Infirmary* The University Infirmary provides for minor medical services to all students and temporary in-patient care for resident students. A nurse and a part-time physician are in attendance. Other physicians, other health specialists, and hospitals are available in Worcester.

*Health and Accident Insurance* Subscription to a low-cost health and accident insurance plan covering ordinary medical expenses not covered by the University is urged of all students unless they are similarly protected by other insurance.

There is a Psychological Services Center which is part of the doctoral training program in Clinical Psychology. In keeping with the training functions of the program some psychological services (testing, psychotherapy, etc.) are available. Every effort is made to refer students to an appropriate resource for help in academic or personal adjustment.

*Psychological  
Services  
Center*

A college counsellor is available to assist students with academic and personal matters.

*College  
Counsellor*

Students and alumni of the University may use the services and facilities of the Career Planning and Placement Center, which include: a library of graduate school directories and catalogs; vocational testing; information on destinations of Clark graduates in careers and acceptance to graduate study; on-campus interviews with representatives of employing organizations and complete lifetime placement service. Vocational counseling services may involve giving information related to curriculum choice and vocational possibilities.

*Career  
Planning and  
Placement  
Center*

## Student Life

The Clark Community is a liberal environment in which the University makes a basic assumption of maturity in students. The University operates with a minimum of social regulations. Students are expected to take primary responsibility for the personal, social and intellectual aspects of their own lives.

The Student Council, a representative body elected by the students each February, has an influence in the social, cultural and political activities of the campus. Formerly concerned primarily with the allocation of the Student Activity Fund to the various student organizations, in recent years Student Council has expanded its activities to increase student involvement and power in University governance.

*Student  
Government  
and  
Participation  
In Institutional  
Decision  
Making*

Students have representation on several important University committees and have less formal access to a number of faculty and administration members which enables them to play an increasing role in the making of University policy.

*Communications* Students publish *Scarlet*, a weekly newspaper; *Helicon*, a literary magazine; and *Pasticcio*, a yearbook. A campus radio station, WCUW, broadcasts approximately 70 hours per week.

*Cultural Events and Activities* Noted scholars, musicians, artists, performing groups and public figures, sponsored by the University and various campus groups, are brought to Clark for lectures, performances and concerts.

Campus musical groups open to student participation include the University Chorale, Instrumental Ensemble, and the Chamber Chorus.

The Clark University Players Society presents dramatic offerings with student casts.

*Social Activities and Organizations* The Student Social Affairs Board, elected by the Student Body, sponsors a variety of concerts, some dances, and runs a coffeeshouse in Little Commons. Most weekends are highlighted by movies, usually for free or for a very small admission charge, and by coffee-house concerts which feature a variety of high quality folk, country, jazz, and rock entertainment.

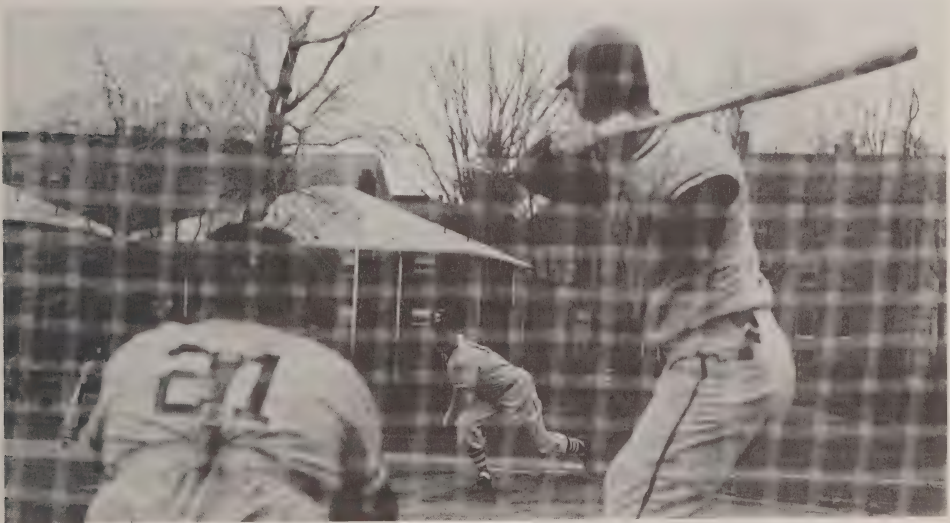
*Campus Organizations* Each year organizations are formed which reflect the current interests of the student body and thus, rise and fall in popularity according to those interests. There are student organizations affiliated with academic departments, such as Physics, Psychology and German clubs, and others related to hobbies or interests, such as the Chess Club, Pre-Law Club, Photography Club, and Craft Studio. Religious organizations include the Clark Christian Association, The Newman Association and Hillel Counselorship. Scarlet Key, an honorary service society open to men and women, organizes tours for campus visitors and in other ways aids in the hosting of University guests and the introduction of new students to the campus.

*Social  
Action  
Activities*

Like many campuses, Clark is in a state of relative political calm. A good number of individual students are, however, active in politics, social movements and in community action. A variety of campus organizations brings important issues to the Clark Community through speakers, debates, panel discussions, seminars, and films. Active campus organizations include a Community Relations Committee under Student Council, Student Mobilization Committee, Women's Liberation, Students for Participation in Politics, the Young Socialist Alliance and the Black Student Union.

## Physical Education and Athletics

Programs are designed to stimulate and encourage students to wider participation in physical activities to promote health and mental efficiency and lead to continuing participation throughout life. Participation is voluntary.





*Men's  
Programs*

Men may choose activities in the following areas:

*1. Intercollegiate Athletics*

For men with a reasonably high level of skill and a well defined and strong interest in athletic competition, intercollegiate schedules at the Varsity and Freshman levels are arranged in baseball, basketball, golf, eight-oared shells, soccer, tennis, track and cross-country. Intercollegiate competition is arranged as student demands warrant.

*Eligibility*

Students carrying less than a full program of studies are ineligible to participate in organized extracurricular competitive athletics unless the reduced program permits graduation at the end of the year in which the program is carried. A student transferring with advanced standing from another four-year college is ineligible for one calendar year from the date of registration at Clark to participate in any varsity level sport. Special students are not normally entitled to participate in competitive intercollegiate sports.

*Association  
Memberships*

Clark University is a member of the National Collegiate Athletic Association, the Eastern College Athletic Conference, the New England College Athletic Conference and numerous sports associations.

*2. Intramural Athletics*

The opportunity to gain some of the benefits of participation in competitive athletics is offered to all students through organized intramural competition in touch football, basketball, volleyball, tennis, handball, table tennis, paddle rackets, and softball.

*3. Co-Recreational Athletics*

Swimming, volleyball, softball, badminton are offered on a co-ed basis in addition to separate men's and women's competition.

*Women's  
Programs*

Students may participate in archery, badminton, basketball, fencing, field hockey, golf, horseback riding, tennis, softball, volleyball and in several dance activities, including folk, square and modern dancing.

Women use their own gymnasium for practice but have the use of the Alumni Gymnasium for games with outside organizations.

## Admission

Clark University welcomes applications for admission from men and women without regard to race, creed, color, or national origin. Selection is competitive and is based primarily on academic promise as indicated by secondary school performance, recommendations, and Scholastic Aptitude Test scores. Secondary considerations include unusual strengths and particular accomplishments.

### *Freshman Admission*

In general, the completion of a four-year secondary school program or its equivalent is required for admission to the freshman class. Although Clark does not have an early admission program, applications will be considered from outstanding students in their junior year of secondary school who have the unqualified and enthusiastic recommendation of their college counselors. Official records of all secondary schools attended must be submitted.

### *Entrance Requirements*

A minimum of 16 acceptable units of credit is required for admission to the freshman class. Such programs typically include four years of English; two or more years of any foreign language studied; two or more years of mathematics (three or more for those planning a science or mathematics major); at least one year each of social studies and natural science (more laboratory work for those planning a science major); and other credit electives, including the arts, recognized in the secondary school curriculum.

All applicants must arrange by January of their final year of secondary school to take and to submit the results of the Scholastic Aptitude Test as administered by the College Entrance Examination Board. Achievement Tests are not required. Candidates who have studied French or Spanish are advised that Achievement Tests in these subjects are used for placement and appropriate test results should be submitted.

Further information concerning these testing programs may be obtained from the applicant's secondary school guidance counselor or from the College Entrance Examination Board. The College Entrance Examination Board may be addressed in the East at Post Office Box 592, Princeton, New Jersey 08540; in the Far West at Post Office Box 1025, Berkeley, California 94701.

Candidates for admission wishing a campus tour or interview are asked to write or call the Admissions Office for detailed information concerning appointments. An interview, however, is not required.

### *Applications*

Candidates for admission are encouraged to submit their applications as early as possible during the first semester of their final year of secondary school. All applications must be received by *February 1*. *Early decision* candidates must file complete applications by *November 1*. An application fee of \$15.00, non-refundable, must accompany each application unless a waiver is being requested.

### *Notification of Admission and Deposit*

Time of notification of admission to the incoming freshman class is normally on or about April 15. Students who have applied for *early decision* will be notified on or about December 1.

Upon receipt of a formal offer of admission a student must indicate acceptance of the offer by making an admission deposit of \$200.00, non-refundable, to reserve a place within the incoming freshman class. This deposit will be credited towards the charges for the first semester.

### *Housing Arrangements*

All single freshmen not living with their families must live in residence within University operated dormitory facilities. Rooms are assigned during the summer prior to the arrival of the freshman class. Inquiries concerning living arrangements should be sent to the Office of the College.

### *Transfer Applicants*

Clark University will consider applicants for transfer from four-year colleges and universities and from two-year colleges. Normally, only those students seeking entrance in the fall and at the junior level are considered. The application deadline is April 1.

All applicants for transfer are required to submit evidence of honorable dismissal, complete transcripts of all previous academic records, including the results of all College Entrance Examination Board tests taken, and such other information as the Admissions Committee may request.

*Transfer  
Requirements*

Credit is normally given for courses previously taken at accredited colleges or universities if these courses are comparable to those offered within the Clark University curriculum. Credit for courses previously taken at non-accredited colleges is granted only on a provisional basis to be evaluated upon successful completion of two semesters of full-time work at Clark. No credit is given for any course completed with a grade lower than C-minus.

*Transfer  
Credit*

Evaluation of credits for college courses completed elsewhere is made prior to or at the time of a student's first registration at Clark and is used in planning his course program and in classifying him provisionally as a freshman, sophomore, or junior. A maximum of 60 credits may be accepted toward a degree at Clark. Two academic years are usually minimum for completion of degree requirements.

While Clark welcomes applications from foreign students, it is unable to provide financial aid to cover a foreign student's educational expenses. The University does, however, participate in the LASPAU Program partially funded by the Agency for International Development. Each foreign student accepted for admission must have medical insurance, preferably that available from the Institute of International Education.

*Foreign  
Students*

Applications from foreign students must be submitted by February 1. Foreign students whose native tongue is not English must be able to satisfy the University requirements for proficiency in the English language.

Persons who are not degree candidates, but who wish to take advantage of the opportunities for study provided by the University and who give satisfactory evidence of adequate preparation for the work which they wish to undertake, may apply for admission under the status of Special Student. Enrollment in this category is limited. Inquiries concerning

*Special  
Students and  
Auditors*



this category of student should be addressed to the Office of the Registrar.

At the discretion of the administrative officers of the University, Auditors, registered for attendance but not for credit, may be admitted. They are required to pay the regular tuition rates and the matriculation fee, but are not enrolled as students.

*Summer  
School  
and Evening  
College*

Persons who wish to be candidates for a degree, or who wish to take advantage of the opportunities for study provided by the Summer School or the Evening College, are invited to send inquiries concerning admission, programs available, or other questions to the Director of the Evening College or Summer School.

## Undergraduate Financial Aid

*General  
Information*

Financial aid is allocated on the basis of financial need and academic performance and consists of scholarships, grants, loans and part-time employment. The Committee on Financial Aid assesses each student's financial situation on the basis of the computation system established by the College Scholarship Service of the College Entrance Examination Board, Princeton, New Jersey or the American College Testing Program, Iowa City, Iowa. The assessment takes into account family income and assets, age of parents, financial commitments to other dependents and members of the family, and other special circumstances. It is expected by the University that a student's resources for education will come first from family resources and his own savings and earnings.

*Costs*

Expenses at Clark vary from student to student, but an average student expense budget for 1972-1973 is as follows:

|                                               | <i>Resident</i> | <i>Commuter</i> |
|-----------------------------------------------|-----------------|-----------------|
| Tuition                                       | \$2,600         | \$2,600         |
| Comprehensive Fee                             | 50              | 50              |
| Student Activities Fee                        | 75              | 75              |
| Contingency Fee (Freshmen and Transfers only) | 25              | 25              |
| Insurance (Optional)                          | 33              | 33              |
| Board (20 Meal Plan and Room)                 |                 |                 |
| (Double Room — Average)                       | 1,275           | 500             |
| Books and Supplies — Average                  | 150             | 150             |
| Clothing, Laundry, Recreation, Incidentals    | 450             | 400             |
| Travel                                        | *               | 175             |
| Total                                         | \$4,650         | \$3,950         |

\*A reasonable allowance should be budgeted for travel between University and student's home.

1. **Freshmen** — To be considered for financial aid, a candidate for the Freshman Class must complete the following steps:

*Method of  
Application*

- a. File an application for admission with the Director of Admissions by February 1.
- b. File a completed Parents' Confidential Statement with the College Scholarship Service by February 1 (November 1 for early decision candidates) and direct that a copy be forwarded to Clark University. The Parents' Confidential Statement may be obtained from the secondary school guidance office.
- c. Residents of Massachusetts are expected to make application to the Board of Higher Education for a Massachusetts State Scholarship. Information is available from secondary school guidance counselors. Students applying from out of state should investigate the opportunity of using their State Scholarship Program at Clark.
- d. Notification — Entering freshmen will be notified of the decision of the Committee on Financial Aid simultaneously with the decision of the Admission Committee in mid-April of their senior year in high school.

*Renewal of  
Awards*

Upperclassmen must reapply annually for financial aid by submitting an updated Parents' Confidential Statement to the College Scholarship Service prior to March 1. In addition students seeking renewal of their allocation must submit a Clark "Supplement to the Upperclass Financial Aid Request" to the Financial Aid Office by March 1. Forms may be obtained from the Financial Aid Office of the University.

2. **Transfers** — Students applying for admission with Advanced Standing and who are requesting financial aid should submit the Parents' Confidential Statement to the College Scholarship Service prior to April 15.

Applications for financial aid cover all scholarships, grants, loan funds — including National Defense Student Loans — and College Work-Study funds administered by the University. Because the University's financial aid funds are limited, not all students who apply for aid can be given an award. Students who have financial need and do not receive financial aid from the University at the time of admission should review their financial resources before accepting an offer of admission to the University inasmuch as a student should not ordinarily expect to receive an award as an upperclassman if he has not received an award as a freshman. Each year the University is able to help only a few new upperclass applicants for assistance.

The policy of the University is to renew aid to a freshman who continues to demonstrate financial need as an upperclassman. Financial aid awards may be adjusted from year to year as a student's need varies.

The Committee on Financial Aid expects that all financial aid recipients will contribute to the cost of their education from summer and part-time employment.

Financial aid awards have reasonable average-earnings expectations factored in. It is also expected that students on financial aid will not maintain or operate motor vehicles while in attendance at the University unless an automobile is needed for commuting purposes or in the earning of income.

The University administers financial aid by a method called "packaging"; i.e., each recipient is normally expected to meet part of his financial need through employment and the use of loan funds, with the

balance coming from the University or some other source in the form of scholarship or grant. Packaged financial aid awards are typically composed of a combination of two or more of the following four categories.

*Jonas Clark Scholarships* — A portion of the University's income is reserved for this purpose. Gifts from Alumni, parents and friends provide additional, important sources of funds for scholarship purposes.

*Federal Educational Opportunity Grants* are part of a Federal program of assistance to college students. They are grants, not loans, and are renewable on a yearly basis. The grants are specifically designated for students from low income families.

*National Defense Student Loan Program* provides funds for long-term loans which bear no interest until a student has completed full-time study. Normally a person borrowing from these funds will repay the amount over a period of up to ten years. National Defense Student Loans are granted on the basis of financial need and available funds. All National Defense Loan commitments are made contingent on Congressional appropriation of funds annually for this program.

*College Work-Study Program* — There are Federal funds to provide employment for students who have financial need. Application for employment through the College Work-Study Program may be made at the Financial Aid Office.

Further details on all forms of financial aid at the University may be obtained by writing to or visiting the Financial Aid Office.

1. *Guaranteed Loan Program* — A Federal loan program designed primarily for middle income families is available and administered in the various states by local banks. Undergraduates may borrow up to \$1,500 yearly (depending upon the State); graduate students may borrow up to \$1,500 yearly. Students whose families have adjusted incomes of under \$15,000 will have a portion of the interest paid by the Government. Since the program is not completely operative in all states at this time, it would be advisable for students interested in this program to contact their local banks for complete information.

*Supplementary  
Sources of  
Assistance*



2. *State Scholarships* – Information pertaining to State Scholarship Programs is available at secondary school guidance offices.
3. *Veterans' Benefits* – Veterans admitted to Clark should communicate with their local Veterans Administration Office requesting an application for a program of education under Public Law 89-358.
4. *Student Employment* – Part-time employment for undergraduates is coordinated through the Financial Aid Office. There is work available in the various offices and departments of the University. Applications are available from the Financial Aid Office.

Most scholarships awarded by the University are designated Jonas Clark Scholarships. Funds for these scholarships are derived from University income and from endowed funds as follows: Because of the various restrictions placed on these funds, it is the policy of the College to select eligible recipients. Students should not apply directly for them.

The Reginald Bryant Allen Fund  
 The Alumni Group Scholarship  
 The B'nai B'rith Scholarship  
 The Gertrude and William Brodie Award  
 The Reina and Isidore Chaiklin Scholarship Fund  
 The Charles W. and Annie L. Bruninghaus Fund  
 The Clark University Faculty Women's Club Scholarships  
 The Theodore T. and Mary E. Ellis Fund  
 The Albert C. Erickson Scholarship  
 The A.D. Ross Fraser Scholarship  
 The Aaron Fuchs Memorial Scholarship Fund  
 The Paul S. Goldman Memorial Scholarship  
 The Bertram L. and Bessie T. Handleman Fund  
 The Frank H. Hankins Scholarship  
 The High School Basketball Tournament Scholarship  
 The Gertrude and Eva Hillman Scholarship  
 The Frances Tufts Hoar Fund  
 The Gordon A. Hubley Fund  
 The M. Hazel Hughes Scholarship  
 The George N. Jeppson Scholarship Fund  
 The Dr. Edmund Randolph Laine Scholarship Fund  
 The David Ashley Leavitt Memorial Scholarship Fund

The Levi Knowlton Fund  
 The Elizabeth T. Little Scholarship Fund for Women  
 The Homer Payson Little Scholarship in Geology  
 The Livermore and Ambulance Drivers Scholarship  
 The Robert H. Loomis Scholarship  
 The National Council of Jewish Women Scholarship  
 The Alice Friend Newton Memorial Scholarship  
 The Abraham Persky Scholarship Fund  
 The Charles B. Randolph Fund  
 The Helen Brewster Randolph Memorial Scholarship  
 The Jennie L. Richardson Scholarship  
 The William Richardson Scholarship  
 The Sanford Memorial Scholarship  
 The Samuel Schanberg Memorial Scholarship Fund  
 The Fredric T. Sewall Scholarship Fund  
 The Henry L. Signor Scholarship  
 The Benjamin R. and Grace F. Vanderford Student Aid Fund  
 The Whitman Scholarship  
 The Henry A. Willis Scholarship

# The University Campus

Clark University is an urban institution, located two miles from Worcester's business center. The University's 25 major buildings are situated on a 35-acre campus. Near the campus are athletic fields and the 20-acre Hadwen Arboretum. Numbers below refer to position on map.

First building erected on the campus in 1887; four-story granite and brick. Houses the Evening College, Placement Office, many offices and classrooms.

*1. Jonas G. Clark Hall*

Completed in 1958; has modern research and instruction facilities for Chemistry Department; houses Johnson Auditorium, a multipurpose lecture hall for 174 persons.

*2. Jeppson Laboratory*

Second oldest building, built in 1887; site of experimentation and research by Dr. Robert H. Goddard, "Father of the Space Age," and Dr. Albert A. Michelson, America's first Nobel Prize winner; houses research and instruction facilities for Biology and Physics Departments.

*3. Science Building*

Gymnasium seating 800 persons, shower and locker facilities for intramural and intercollegiate athletics, offices of the Department of Physical Education. On the second floor is the Alumni Office and Alumni Lounge, a meeting room for University organizations.

*4. Alumni Gymnasium*

Houses a dining hall, snack bar, student lounges, recreation room, University Bookstore.

*5. Jefferson Hall*

*6. Visitors' Parking*

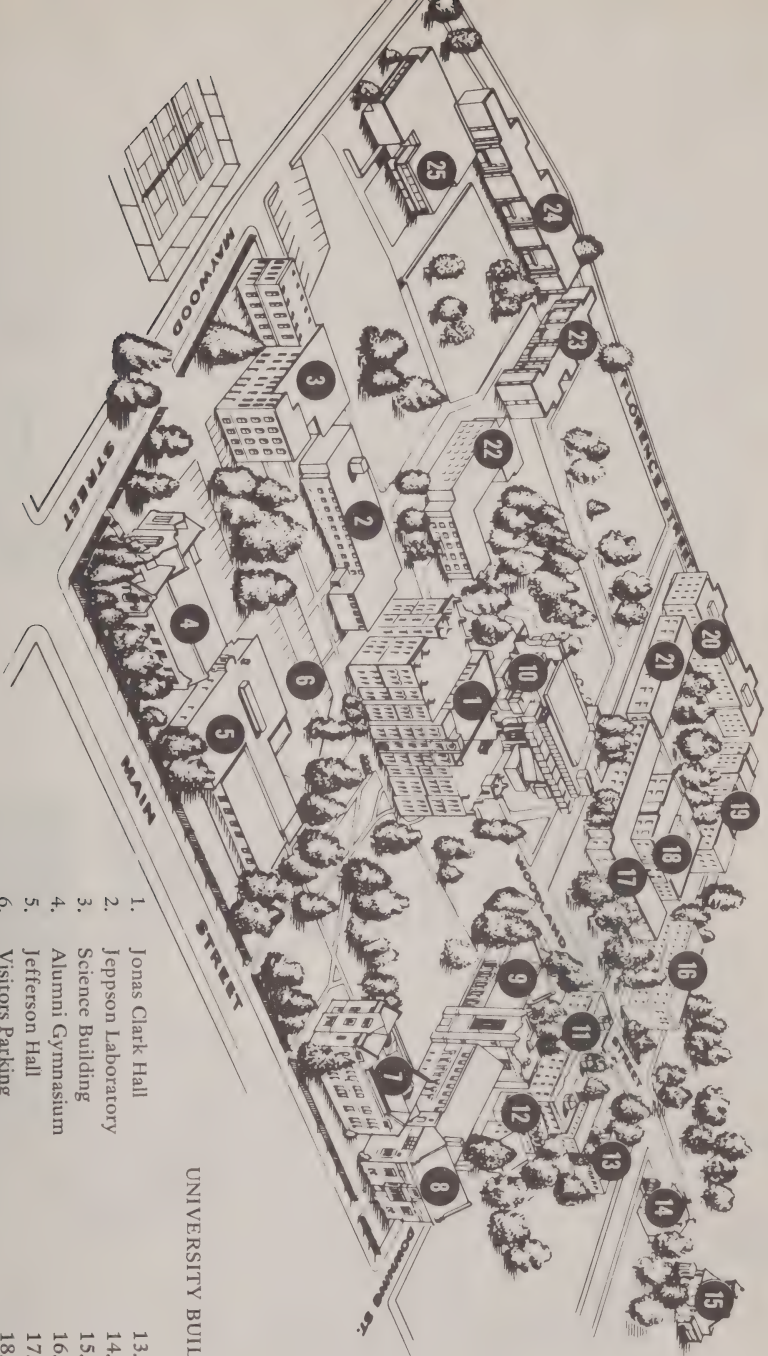
Site of America's first Graduate School of Geography; houses offices of President, Provost, Deans, Executive Vice President; contains other administrative offices.

*7. Geography Building*

Located in the renovated old library; houses School of Geography, Training Teacher Trainers Program, Departments of History, Government and International Relations and Sociology.

*8. Academic Center*

9. *Atwood Hall* Contains an 800-seat auditorium; Blue Room for smaller lectures and meetings; offices and classrooms of Fine Arts Department.
10. *Robert H. Goddard Library* Houses more than 300,000 volumes, has about 1,000 individual reading areas.
11. *Downing Administration Building* Houses offices of Admissions, Deans of Students, Financial Aid, Registrar, Bursar, Treasurer, Business, Public Relations and Philosophy Department.
12. *University Infirmary*
13. *Nursery School; Campus Police*
14. *English House* Contains English Department Offices and classrooms.
15. *Conference Center And Dept. Of Management* Contains comfortable rooms for university meetings and functions. Houses offices of the Department of Management.
16. *Estabrook Hall* Contains Departments of Music, Mathematics and Languages and Literatures.
17. *Wright Hall* Dormitory for 200 men.
- 18-21. *Downing Residence Center* Opened in 1964, Center includes: (18) Homer P. Little Student Commons building, containing dining facilities, lounges, and meeting and recreation rooms; (19) Sanford Hall for 146 men; (20) Johnson Hall, a co-educational dormitory for 150 students and (21) Dodd Hall for 128 women.
22. *Bullock Hall* Dormitory for 137 women.
- 23-25. *Dana Residence Center* Second residence complex, named in honor of Mr. Charles A. Dana of Bridgeport, Conn., opened in 1967; includes (23) Hughes Hall, dormitory for 150 women; (24) a coed dormitory for 146 students; and (25) Dana Commons, a student center with dining facilities and offices for student organizations.



## UNIVERSITY BUILDINGS

- |     |                               |     |                           |
|-----|-------------------------------|-----|---------------------------|
| 1.  | Jonas Clark Hall              | 13. | Psychology Nursery School |
| 2.  | Jeppson Laboratory            | 14. | English House             |
| 3.  | Science Building              | 15. | Conference Center         |
| 4.  | Alumni Gymnasium              | 16. | Estabrook House           |
| 5.  | Jefferson Hall                | 17. | Wright Hall               |
| 6.  | Visitors Parking              | 18. | Little Commons            |
| 7.  | Geography Building            | 19. | Sanford Hall              |
| 8.  | Academic Center               | 20. | Johnson Hall              |
| 9.  | Atwood Hall                   | 21. | Dodd Hall                 |
| 10. | The Robert Hutchings          | 22. | Bullock Hall              |
| 11. | Goddard Library               | 23. | Hughes Hall               |
| 12. | Downing Administration Center | 24. | Dana Men's Dormitory      |
|     |                               | 25. | Dana Commons              |





# The Robert Hutchings Goddard Library

Tilton M. Barron, *Librarian*

Paul S. Clarkson, *Curator of Special Collections*

William A. Koelsch, *University Archivist*

Marion Henderson, *Reference Librarian*

Elizabeth Hassinger, *Catalog Librarian*

Thomas V. Mongeon, *Circulation Librarian*

Irene Walch, *Assistant Reference Librarian*

Jean F. Perkins, *Assistant to the Librarian*

The University's new Library contains over 312,000 volumes and some 50,000 maps and charts. The major part of the collection is centrally housed, and an open shelf system fosters free access to books and periodicals. Chemistry periodicals are available for reference at the Kraus Library in Jeppson Laboratory.

The collection reflects the history and growth of the University. The combined scholar's library of the early graduate school and the undergraduate library of Clark College have been developed through the years to serve the academic needs of the University. The richest holdings are in the fields in which graduate work has been offered for some years — biology, chemistry, economics, education, geography, government, history, international relations, mathematics, physics, psychology, and sociology. More characteristically undergraduate in content are the collections dealing with music, fine arts, language, literature, religion, and philosophy. The Library pays particular attention to major bibliographical and reference tools, and annually receives over 1,800 periodicals. The acquisition and exchange of material is coordinated with other libraries in the Worcester area, and the Worcester Area Cooperating Libraries maintain a shuttle service to facilitate interlibrary borrowing.

The Robert Hutchings Goddard Library provides unusually fine quarters for the utilization of these collections. Completed early in 1969, the new building has a potential capacity of 600,000 volumes and accommodations for more than 1,000 readers, of which 65 per cent are individual study desks. Among its features are the Goddard collection and exhibit area; the Wilson Rare Book Room; university archives; special facilities for art books, record listening and microtext reading; student and faculty lounges; and an after-hours reading room.

The building is named in honor of, and as an international tribute to, Dr. Robert H. Goddard, Father of the Space Age, distinguished alumnus, and professor of physics at Clark from 1914 to 1942.





## The University's Recent Development and Future Plans

The University's development during the decade of the Sixties was characterized by growth in enrollment and extensive development of its physical plant. Through THE CLARK PROGRAM, a comprehensive ten-year development effort, nearly \$12,000,000 in private gifts and \$5,000,000 in public funds were received for physical development and academic enrichment. Eight major university buildings, including the Robert Hutchings Goddard Library, were completed and several other structures were extensively remodeled. At the same time, the University was enriched by two additional endowed professorships and several large endowment funds for scholarships and other purposes.

Private gifts from individuals, foundations, alumni and friends will be of even greater importance to the University during the coming decade. Through The Clark Fund, the University's comprehensive annual giving program, an opportunity is afforded to provide financial support on a yearly basis.

In the year ending June 30, 1972, gifts to The Clark Fund exceeded \$400,000. Although no comprehensive program of capital development has yet been prepared for

the Seventies, capital gifts are being sought for several major University needs, including the construction of modern recreational facilities, the renovation of Jonas Clark Hall, and new facilities for music and fine arts. Individuals interested in making a gift in support of any of the University's needs are invited to direct an inquiry to the Office of the President.

Bequests have always been, and will continue to be, an extremely important means of ensuring the continued growth and financial strength of Clark University. For persons who wish to provide for the University in their estate plans, the following basic legal forms are presented with the suggestion that they be reviewed by an individual's legal counsel. Other forms are available upon request from the Office of the President.

*FUNDS  
FOR THE  
FUTURE  
A Program  
of Deferred  
Giving*

*Unrestricted Bequest*

"I give, devise and bequeath to Trustees of Clark University, a Massachusetts charitable corporation, located in Worcester, Massachusetts (Here insert the amount of money and/or describe the personal property or real estate.)"

"I give, devise and bequeath to Trustees of Clark University, a Massachusetts charitable corporation, located in Worcester, Massachusetts (here describe the gift to be used or the income to be used) for the following purposes (here specify the purposes for which the gift or the income therefrom is to be used)."

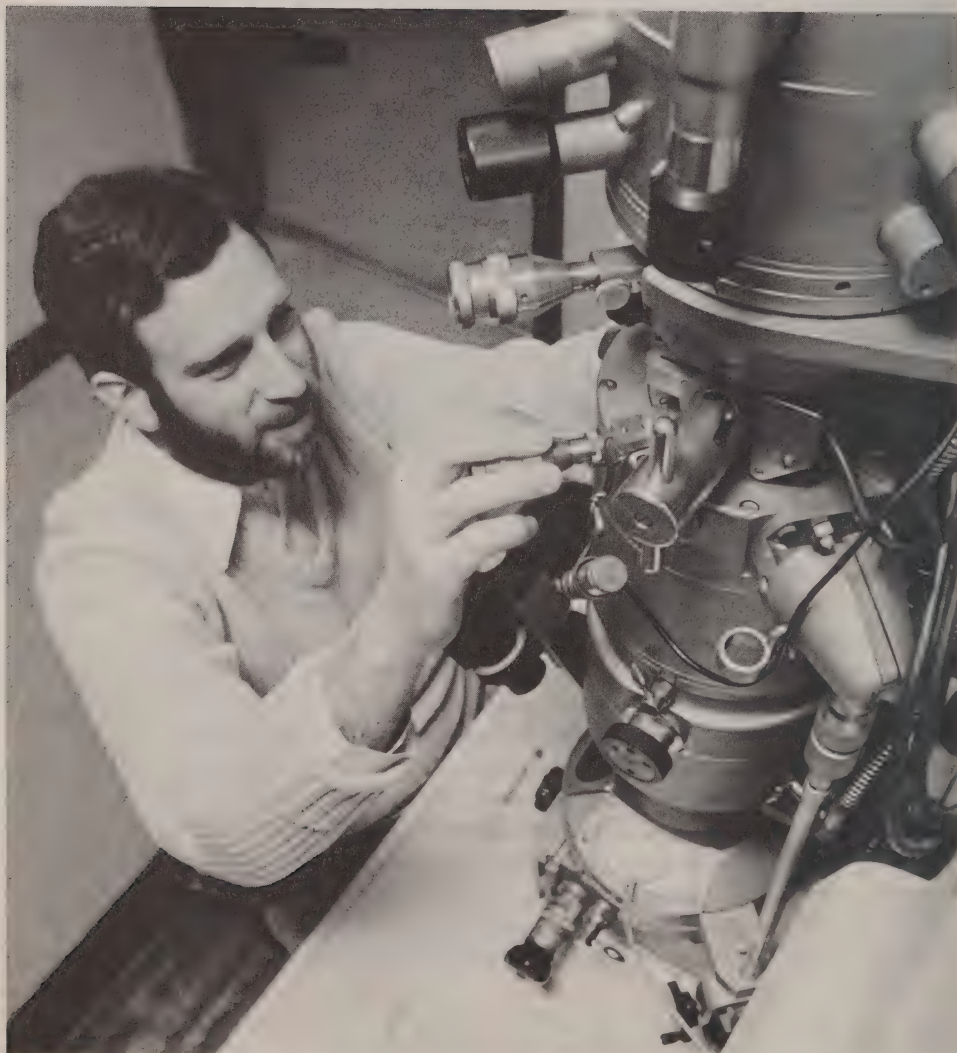
*Restricted  
Bequest*

In addition to legacies, there are other methods of providing for the University in estate plans. Gift Annuities, Life Income Gifts, and Trusts, as defined in the Tax Reform Act of 1969, are available at Clark through its FUNDS FOR THE FUTURE Program. Specific information regarding methods of giving and tax implications under the new law may be obtained by writing to the office of the President. The University will be glad to consult, on a strictly confidential basis, with individuals and their legal counsel about these and other ways of enriching the University.

For purposes of making a gift by will to Clark, the University's legal corporate title is: TRUSTEES OF CLARK UNIVERSITY.



## THE GRADUATE SCHOOL



# The Graduate School

Clark University was initially established in 1887 as the second graduate institution in America. Its faculty and graduates have endowed the University with an impressive record of accomplishments through the years. Under the administration of the Graduate Board, Clark offers programs leading to master's and doctor's degrees to qualified holders of a bachelor's degree or its equivalent of attainment.

Master of Arts degrees are offered in the fields of biology, biomedical engineering (in cooperation with Worcester Polytechnic Institute), chemical physics, chemistry, economics, education, English, geography, government, history, international relations, mathematics, physics, and psychology. The Master of Business Administration degree is offered by the Department of Management.

Doctor of Philosophy degrees are offered in biology, chemistry, chemical-physics, economics, geography, history, international relations, mathematics, physics and psychology. A Doctor of Education degree is offered by the Department of Education.

Post-doctoral training is conducted in geography, psychology and the sciences. Inquiries should be addressed to the chairman of the department concerned.

Departments which do not at present accept candidates for graduate degrees may offer courses which are suitable for inclusion in a program of graduate study.

Scholarships, fellowships and assistantships are listed at the end of this section. Additional information concerning departments and their offerings will be found in the section entitled "Departments and Courses."

Inquiries by students in American institutions concerning specific programs of graduate work should be addressed to the chairman of the department concerned. Inquiries by foreign students should be addressed to the Dean of the Graduate School.

Admission to the Graduate School may be granted only by the Dean of the Graduate School acting for the Graduate Board on the recommendation of a department of the University. Admission to the school does not imply admission to candidacy for a degree.

## *General Information*

## *Inquiries*

## *Admission To The Graduate School*

*Application:* A prospective applicant from an American institution should communicate with the department in which he expects to do his major work. If he is encouraged by the department to make application, he will be provided with an application form which, accompanied by a \$10 application fee, should be returned to the chairman of the department. In addition, the applicant should arrange to have sent to the chairman of the department concerned an official transcript of all undergraduate, and any subsequent academic work, and three letters of recommendation from persons who are competent to judge his qualifications for graduate study.

Departments may request the submission of additional material, and most require a record of attainment in the Graduate Record Examination given by the Educational Testing Service, Princeton, New Jersey. All applicants are urged to take, and to submit the results of the Graduate Record Examination verbal, quantitative and advanced tests.

A foreign student, if encouraged by the Dean to make formal application, should provide a certified English translation of his official record (if not in English), evidence of English proficiency (TOEFL), at least two letters of recommendation and a statement concerning his financial resources, or agency support.

Applications for both admission and for financial aid should be completed not later than *February 20* if the applicant intends to begin his studies in the following September. Applications for admission may be submitted, however, throughout the year.

*Admission:* Admission to the Graduate School is granted for entry only at a specified time and lapses if the student fails to enter at that time. Admission as a part-time graduate student may be granted to qualified applicants who cannot devote full time to study, upon recommendation of the Department.

Application for regular admission should be made through the department concerned. Application for admission as a *special status graduate student* (not in a degree program) should be made through the Registrar's Office.

If a student, when admitted, was a candidate for a degree elsewhere, he must arrange upon receipt of that degree to have a supplementary transcript, including a notation of the degree conferred, sent directly to the Dean of the Graduate School.

*Master of  
Arts*

*Residence:* An academic year (*twenty-four semester hours*) of study in residence is a minimum requirement for a master's degree. Residence study is broadly defined as graduate work done at Clark University under the immediate personal supervision of at least one member of the University faculty.

*Foreign Language:* A reading knowledge of a foreign language may be required of candidates for the degree of Master of Arts at the discretion of the major department. Language or other special requirements are included in the department announcements in the catalog.

*Candidacy:* Application for admission to candidacy for a master's degree should be filed with the Dean of the Graduate School not later than the first week of the last full semester which the student expects to spend in residence as a candidate for this degree. Forms are obtainable at the Registrar's Office.

Applications will be considered by the Graduate Board when the student has completed one semester of full-time graduate work or its equivalent in residence at the University and obtained the written endorsement of his major department.

Candidacy for the degree of Master of Arts is valid through the fourth commencement after admission to candidacy. For satisfactory reasons, candidacy may be extended once for an additional period of three years by vote of the Graduate Board.

If admission to candidacy is not filed at the time of completion of residence, then, after the fourth commencement, admission to candidacy will be approved once for a three-year additional period by vote of the Graduate Board:

*Course and Examination Requirements:* Each student must meet a minimum course requirement of 30 semester hours, and his program must be approved by the chairman of the department. One of his courses, normally three to six semester hours, may be a research course devoted to the preparation of his thesis. Credit for a maximum of six semester hours of course work at another institution may be approved by the Graduate Board upon the recommendation of the department.

Each candidate must make a satisfactory record in such written examinations as may be required by the major department and in a



final oral examination by a committee of three or more, one of whom must be a member of the Graduate Board.

*Thesis:* The thesis is written on a topic in the field of the student's special interest under the supervision of a member of his major department and in a style, length and format that is appropriate to the problem being researched. The ribbon copy of the thesis, a précis approved by the supervising instructor, and an academic history must be deposited in the Registrar's office not later than three weeks before the date of the commencement at which the degree is to be conferred. At least one additional copy of the thesis and the précis must be delivered to the major department which may require more than one copy. The précis may not exceed 75 words in length. The title page, précis and academic history forms are obtainable from the Registrar's Office. The ribbon copy of the thesis must be typed as prescribed in "The Master's Thesis" issued by the Graduate School Office with its notification of admission to candidacy.

The thesis is deposited by the Registrar in the University Library. The précis is printed in an annual publication, *Dissertations and Theses*.

*Diploma Fee:* This fee for the Master of Arts degree is \$25.00. It covers the cost of the diploma, publication of the précis in the booklet *Dissertations and Theses* and binding of the library copy. It is payable when the thesis is deposited with the Registrar. Students who do not write a thesis, including those receiving the degree on the alternative program, must pay this fee no later than the date on which theses are due in the Registrar's Office.

*Alternative Program:* A candidate for the degree of Master of Arts may be recommended for the degree without a thesis when he has passed the preliminary doctoral examination.

*Non-Resident Students:* Students who have been admitted to candidacy for the degree and are not *registered* students are required to pay the non-resident fee of \$12.50 per semester. This fee doubles on renewal of candidacy.

The residency, candidacy, course, examination, and diploma fee requirements are the same as those listed for the degree of Master of Arts.

*Master of  
Arts in  
Education*

*Thesis:* Students may choose one of three options, subject to the approval of the Department of Education. They may choose to (1) prepare a thesis as required for the M.A. degree; or (2) elect two additional subject-matter courses (six semester hours); or (3) elect a research-seminar, three semester hours, in which papers are prepared and presented to fellow students and staff.

Further information concerning the degree of Master of Arts in Education may be found in the catalog section, "Departments and Courses," listed under the Department of Education.

This degree is offered through the Department of Management. For further information, see the catalog section "Departments and Courses," listed under the Department of Management.

*Master of  
Business  
Administration*

The program leading to the degree of Doctor of Education emphasizes human development and learning as it relates to curriculum, instruction, and evaluation and in the sociology of education. The requirements for this degree closely parallel those for the degree of Doctor of Philosophy (see below). See catalog section on Department of Education for further information.

*Doctor of  
Education*

Only such candidates as give evidence of general proficiency, power of investigation and high attainments in the special fields in which their major subjects lie will be encouraged to proceed to the degree of Doctor of Philosophy.

*Doctor of  
Philosophy*

*Residence:* The minimum requirement is one year of full-time study (not less than 24 semester hours beyond the M.A.), or its equivalent in part-time work, in residence which is broadly defined as graduate work done at Clark University under the immediate personal supervision of at least one member of the University faculty.

If the degree of Master of Arts has been earned at Clark, this requirement is an addition to the residence requirement for that degree.

*Foreign Language:* Each graduate department sets its own language or related requirements as the student's field of research may demand, and must report such requirements in each case to the Dean of the Graduate School. If a language is required either the Educational Testing Service Foreign Language Tests or on-campus testing are employed at the discretion of the department.

*Preliminary Examination:* Upon completion of preparation in his fields of study a prospective candidate takes a preliminary examination set by his major department. This examination may be written or oral, or a combination of both. The chairman of the department may invite non-members of the department from within or without the University to participate in the examination.

*Candidacy:* An application for admission to candidacy should be filed when the applicant has (1) completed two full academic years of graduate work, or its equivalent in part-time work, including one year at Clark University; (2) completed the departmental requirements in a foreign language; (3) passed a preliminary examination in his chosen field of study; (4) obtained the written endorsement of his major department. Application forms are obtainable at the Registrar's Office.

Candidacy for the degree of Doctor of Philosophy is valid through the fourth commencement after admission to candidacy. For satisfactory reasons, candidacy may be extended once for an additional period of three years by vote of the Graduate Board. Should a period of four years elapse between completion of prerequisites to filing for candidacy and actual filing for candidacy, then, for satisfactory reasons, candidacy may be accepted once for a three-year period by vote of the Graduate Board.

*Dissertation:* A dissertation which is expected to make an original contribution to some special field of knowledge is required of each candidate. The dissertation, approved by the chief instructor or dissertation committee, is laid before the examining committee at the final oral examination.

An abstract of the dissertation, not exceeding 600 words in length, and a précis, not exceeding 75 words, both approved by the instructor

or committee under whom they were written, are also required.

Four weeks before the degree is to be conferred, the ribbon copy of the dissertation, together with two official title pages, an academic history, the ribbon copy of the abstract and of the précis, each in a form prescribed, must be delivered to the Registrar. At the same time, one or more copies of the dissertation and of the abstract may be required by the major department. The title pages, précis and academic history forms are obtainable at the Registrar's Office. The ribbon copy of the dissertation must be typed as prescribed in "The Doctoral Dissertation" and "Suggestions for the Preparation of Doctoral Dissertations for Microfilming" issued by the Graduate School Office with its notification of admission to candidacy.

The Registrar deposits the dissertation and the abstract in the University Library where they remain permanently. A microfilm copy of each dissertation is made by University Microfilms, Inc., of Ann Arbor, Mich., and is available for duplication by them on request. The abstract is printed in *Dissertation Abstracts*; the précis is printed in an annual publication, *Dissertations and Theses*.

*Final Examination:* The final examination is oral and lasts for at least two hours. Additional written examinations may be given if the major department so directs. The candidate is expected to defend his dissertation and, at the discretion of the examining committee, may be questioned on the entire special field of his study. The oral examination is conducted by a committee of at least four members, composed of the chairman of the department, at least one other member of the Graduate Board, and such members of the department and non-members from within or without the University as the chairman may appoint. The chairman notifies the Dean of the Graduate School, at least one week in advance, of the time and place of the examination and the composition of the committee. The Dean is authorized to invite any person from within or without the University to be present and to assist in the examination.

*Diploma Fee:* This fee for the Doctor of Philosophy degree is \$85.00. It covers the cost of the diploma, hood, publication of the précis in the publication *Dissertations and Theses*, publication of the abstract in



*Dissertation Abstracts* and binding of the library copy of the dissertation. It is payable when the dissertation is deposited with the Registrar.

*Non-Resident Students:* Students who have been admitted to candidacy for the degree and are not *registered* students are required to pay the non-resident fee of \$25.00 per semester. This fee doubles on renewal of candidacy.

*Post-Doctoral  
Study*

Post-doctoral students are classified in three categories: *Honorary Fellows* who are visitors for varying lengths of time, always more than a few days, who wish to observe activities of a department, to study, or to carry on research, but without formal teaching duties or support by the University; *Research Associates* who work full-time with designated members of the University staff on research projects, normally supported by grants, without formal teaching duties but with some responsibility for directing laboratory assistants; and *Trainees* who enroll in a formally offered post-doctoral training program.

The Honorary Fellow and Research Associates enjoy faculty status, although the extent to which faculty privileges may be granted may be restricted by availability of space and other resources.

*Graduate  
Scholarships,  
Fellowships  
and  
Assistantships*

Graduate fellowships and scholarships are provided for well-qualified graduate students by the University from endowed funds and from other sources. Financial aid to graduate students is available also in the form of grants from a number of special funds, and in some departments, from sponsored research grants. A limited amount of part-time employment is available in the various offices and departments of the University. Students who receive awards must obtain permission from the department before accepting employment.

**Application:** Application for a scholarship or fellowship to begin in September should be made before *February 20* to the chairman of the department in which the applicant expects to do his major work. Late applications are acted upon periodically. All applications, after endorsement by the department, go to the Graduate Dean for final action.

*Research Fellowships:* These fellowships may be awarded to graduate

students who have fulfilled their residence requirements and who are pursuing a full-time doctoral program on campus.

### *Teaching Assistantships:*

There are three categories for Teaching Assistantship appointments:

1. *Part-time Lecturer* — a non-probationary, part-time faculty position which does not lead to consideration for tenure or faculty fringe benefits (TIAA, vacation, etc.). The student is responsible for a small class and should have considerable independence over all aspects of teaching and grading. He will be under the general supervision and direction of a senior faculty member.

This category is reserved for the advanced student who has manifested clearly his skill in teaching and is qualified and experienced in the subject he will teach. The student should be accorded as many faculty privileges as possible, e.g., attending department meetings and having office space. Stipend for this position is \$3,000 for nine months.

2. *Teaching Apprentice* — students with prior teaching experience, either as undergraduates or as a graduate assistant. Responsibilities include conducting discussion sections for a course, supervising laboratory sections, running tutorial sections, grading papers and projects and discussing these with the undergraduate students.

The student in this category should be under the direction of a professor who would assume responsibility for his training as a teacher. Stipend for this category is \$2,800 for nine months.

3. *Teaching Assistant* — students with little or no teaching experience. Responsibilities include tasks that allow them to observe experienced teaching assistants or instructors and learn their pedagogical methods. Duties are assigned on a job basis and may include assisting other senior TA's, setting up and tearing down laboratory equipment, and doing a variety of other tasks associated with teaching a course or section.

The assistant may grade examinations only if he is part of a general grading team of assistants or under the direct supervision of a senior TA or instructor. Stipend for this category is \$2,600 for nine months.

The time commitment for each category is approximately half-time. Tuition will be remitted on all three categories. The number of hours of study an assistant at any level takes in addition to his teaching responsibilities should be decided by the department chairman with overall supervision from the Graduate Dean. The Internal Revenue ruling which states that payment for teaching is non-taxable provided it is a requirement for an advanced degree is still in effect, although we have been informed that some cases at other schools have been questioned. If a student chooses to have tax withheld, he is usually entitled to a tax refund when he files with the Internal Revenue Service.

Note that the departments of Biology, Chemistry, Economics, Geography, Government, History, Mathematics, Physics, and Psychology require teaching experience for graduate degrees. See the departmental announcements in the catalog section on "Departments and Courses".

*Assistantships:* In several departments, assistantships are available. They involve a variety of services including research with stipends to correspond, and usually provide the student with experience which will be useful in his later professional work.

*Graduate Fellowship and Scholarship Funds:* Stipends for graduate fellowships and scholarships are provided by:

*The Alumni Association Fund,* provided by alumni who hold the degree of Doctor of Philosophy to benefit students studying for that degree.

*The George S. Barton Fund,* a bequest from the Honorable George S. Barton of Worcester, to be used for the benefit of native-born citizens of Worcester.

*The Elnora W. Curtis Fund,* a bequest from Dr. Elnora W. Curtis, A.M. 1908, Ph.D., 1910, for the benefit of graduate students.

*The Eliza D. Dodge Fund,* to be granted to graduate students of limited means who are engaged in research work.

*The Joseph F. Donnelly Memorial Fund,* a bequest from Lucretia F. Donnelly to help men who are enrolled in a course leading to the degree of Doctor of Philosophy.

*The John White Field Fund,* established by Mrs. Eliza W. Field to provide for the minor needs of a scholar or fellow.

*The Austin S. Garver Fund*, a bequest from Austin S. Garver, member of the Board of Trustees from 1908 to 1918.

*Graduate School Scholarship Fund*, a bequest from Alexander H. Bullock, a member of the Board of Trustees from 1926 to 1946 and president of the board from 1938 to 1946.

*The George Frisbie Hoar Fund*, the gift of Andrew Carnegie in honor of the second president of the University's Board of Trustees.

*The Myers Fund*, a gift of George E. Myers, Ph.D., '06, to assist graduate students to do research in education and psychology.

*The Charles H. Thurber Fund*, provided by Charles H. Thurber, member of the Board of Trustees from 1913 to 1938 and president of the board from 1919 to 1937.

Loans, bearing interest at three per cent per year after completion of residency, are available for full-time graduate students after one semester in residence from these funds:

*Graduate  
Loans*

*The Mary S. Rogers Scholarship and Loan Fund*, established in 1926 for the benefit of students in the graduate school.

*Loan Funds*

*The Mary M. Thurber Fund*, established by the late Dr. Charles H. Thurber, former president of the University Board of Trustees, as a memorial to his mother.

For loans from these and other sources that may become available, application should be made at the Graduate School Office.

*The Wallace W. Atwood Research Fund*. The income of this fund may be used at the discretion of the staff in the Graduate School of Geography for the promotion of field studies in geography by any member of the staff, or any one of the alumni holding a graduate degree from the Graduate School of Geography, or for the publication of results of such research work.

*Departmental  
Funds*

*The Chester Bland Fund*. The income of this fund is preferably used to provide aid to a promising student, either in residence or engaged in research elsewhere under the direction of the Department of History. It may also be used to defray the expense of visiting lecturers or of departmental research.

*The Wallace W. Greenwood Fund*. The income only is to be divided between the Departments of Physics and Chemistry and to be used for



any purpose within the scope of these two departments.

*The Morton L. "Sonny" Lavine Foundation* is a memorial to Lieutenant Lavine of the United States Army, World War II. The income is to be used for the promotion of research in the Department of History.

*The Libbey Fund*, bequeathed to the University by Mary E. Libbey, is to establish a fellowship in physical geography and to aid the Department in that field.

#### *Housing and Board*

Off-campus rooms and apartments for both men and women are available in the immediate area of the University. For information concerning accommodations, write directly to the Office of Buildings and Grounds, which keeps a *bulletin board* of available off-campus rooms and apartments, or to the department concerned. Students should plan to arrive a few days before registration in order to arrange for housing because of the limited number of suitable off-campus apartments in the immediate area.

Graduate students are invited to take their board in the University dining halls under one of the food plans available. They will also find the Snack Bar in Jefferson Hall available for single meals.

#### *Infirmary and Insurance*

A low-cost insurance plan covering ordinary medical expenses and limited maternity benefit for married students is available through the University. Unless a student is protected by similar insurance, he must enroll in this plan since all graduate students must be covered by Health and Accident Insurance. Students are not automatically covered by this insurance but must apply for it through the Graduate School Office where applications are available.

Graduate students are entitled to use of the Infirmary for minor first-aid needs.

## Graduate Tuition and Other Charges

Tuition and insurance charges are payable when the semester bill is received. Identification cards are provided each year of residence. A late registration fee of \$25.00 is charged if registration is not completed by the end of the second week of the semester. Candidates who are not in residence must pay the non-resident fee until the requirements for the degree are fulfilled; non-payment will automatically terminate candidacy.

*Tuition:* Full Program: \$1,300.00 per semester.

*Schedule of  
Tuition and  
Other  
Charges*

If less than a full program, the student will be charged according to the fraction of a program indicated by the Chairman of the department on the registration card.

Tuition for Special Graduate Students \$110.00 per semester hour

| <i>Insurance:</i> | <i>Regular Coverage</i> | + | <i>Optional Supplement*</i> |
|-------------------|-------------------------|---|-----------------------------|
| Single Students   | \$37.00                 | + | \$ 40.00                    |
| Married Student   |                         |   |                             |
| & Spouse          | \$135.00                | + | \$ 80.00                    |
| Family Plan       | \$165.00                | + | \$120.00                    |

\*Optional supplement premium is in addition to premium for regular coverage.

*Diploma Fee:* (payable at the time the thesis or dissertation is deposited with the Registrar):

Students who do not write a thesis or dissertation, including those receiving the degree on the alternative program, must pay this fee no later than the date on which theses are due in the registrar's office.

|                          |         |
|--------------------------|---------|
| Master's Degrees         | \$25.00 |
| Doctor of Philosophy and |         |
| Doctor of Education      | \$85.00 |

*Non-Resident Candidate Fees:* (payable on November 1 and March 1). If the thesis or dissertation is deposited with the Registrar before either date, no fee is charged for the semester.

The fees double upon renewal of candidacy.

|                     |                      |
|---------------------|----------------------|
| Master's Candidates | \$12.50 per semester |
| Doctoral Candidates | \$25.00 per semester |

(For the Master of Business Administration tuition and fees, see the catalog section "Department of Management".)

*Refund*

A student who officially withdraws in writing during the first two weeks of any semester is allowed a refund of 60 per cent on tuition; during the third week, 40 per cent; during the fourth week, 20 per cent; after the fourth week there is no refund. There is no refund on other charges, except board, when a student withdraws from the University.



## The Summer School

Intensive instruction in numerous fields of study is offered in the summer programs. A variety of courses is offered for undergraduates, graduate students and teachers. A student may register for up to a full semester of work each summer by attending all the sessions. Evening courses are also available during the summer to all students to continue their education while engaged in day-time employment.

*Summer Study*

All courses offered in the Summer School are accepted at Clark for credit toward bachelor's degrees unless they are specifically limited in the description of the course. Many courses count toward the degrees of Master of Arts, Master of Arts in Education and Doctor of Philosophy. However, approval for such courses should be obtained in advance from the student's major department.

*Degrees and  
Credit*

Graduate students formally registered in the Summer School may, with the approval of their major department, enroll in thesis courses under the direction of regular members of the staff.

Detailed information concerning the Summer School are contained in a Summer School catalog which may be requested from the director of the Summer School.

*Summer  
School  
Catalog*





## The Evening College

### *General Information*

The Evening College, established in 1953 as an institution devoted to adult learning, has three primary functions. With the conviction that education in our modern society must be a life-long process, it provides university education for adults of all ages who seek further knowledge and personal development through selected studies in the broad areas of the liberal arts. Further, in recognition of the rapidly developing and changing needs of business and the professions, it provides courses designed to help working men and women improve their occupational skills and to prepare for positions of increased responsibility.

Secondly, the Evening College provides an opportunity for adults to earn the bachelor's degree, exclusively by evening study, through programs planned to meet the unique educational needs of the mature person. Formal programs are available leading to the degree of Bachelor of Science in either general studies or business administration and to the degree of Bachelor of Fine Arts. The Evening College also offers the Diploma in General Studies after completion of a short formal program in liberal education designed specifically for adults.

Finally, as a community service, the Evening College organizes frequent non-credit short courses, institutes and seminars, which are tailored to the specific needs of various civic, professional and business groups.

Students may be enrolled for either individual courses or formal programs of study.

*Individual Courses:* Admission to individual courses in the Evening College is open to all interested adults seeking to further their education. High school graduation is not required but desirable. Continued attendance is contingent upon evidence of ability to profit from the instruction offered. Advanced courses for which prerequisite courses or experience are indicated are open only to persons who meet the stated requirements.

*Admission To Formal Programs:* Adults applying for a formal program of study in the Evening College will be required to submit records of their previous schooling prior to admission. Except under unusual circumstances applicants must possess a diploma from an accredited high school. Applicants for the Bachelor of Science degree or the Diploma in General Studies who have not attended college previously may arrange to have their high school records forwarded to the Evening College on forms supplied to them on request to the college. Adults who have attended other colleges should request that their transcripts be forwarded directly to the Evening College.

*Admission*

Detailed information about the Evening College is contained in a special catalog which may be requested from the director of the Evening College.

*Evening  
College  
Catalog*

# DEPARTMENTS AND COURSES



# Departments and Courses

The course offerings of each department are listed in their numerical sequence. The announced courses are subject to modification and change.

*Department  
Courses*

Each course is indicated by number and title. A course number, unmodified by “a” or “b” indicates a year-course, one which continues through two semesters of an academic year. A course number followed by an “a” refers to a half-course usually offered in the first semester. A number followed by a “b” refers to a half-course usually offered in the second semester.

*Course  
Numbering  
System*

Two-semester courses are divisible unless an explicit statement of indivisibility appears in the course statement. Courses which are indivisible normally require the successful completion of the first semester as a prerequisite to entering the second semester, and students who register for an indivisible course must complete the second semester of the course before receiving credit for the first.

## NOTES:

For courses in Comparative Literature and Foreign Literature in translation see listings under the Department of Foreign Languages and Literatures.

Clark students may take for credit through the Consortium appropriate courses in Latin and Greek offered by the College of the Holy Cross and Assumption. For Classics courses taught in English see course listings under Department of Foreign Languages and Literatures.



# Biology

## DEPARTMENT FACULTY

Rudolph F. Nunnemacher, Ph.D., *Professor of Zoology, Department Chairman*  
 Vernon Ahmadjian, Ph.D., *Professor of Botany*  
 Joseph C. Curtis, Ph.D., *Professor of Zoology*  
 John T. Reynolds, Ph.D., *Professor of Microbiology*  
 John J. Brink, Ph.D., *Associate Professor of Biochemistry*  
 Behrus Jahan-Parvar, M.D., *Senior Research Scientist, NIH Career Award*  
 H. William Johansen, Ph.D., *Associate Professor of Botany*  
 Nicholas S. Thompson, Ph.D., *Associate Professor of Psychology and Adjunct Associate Professor of Biology*  
 Bruce C. Coull, Ph.D., *Assistant Professor of Zoology*  
 Richard A. Howard, Ph.D., *Assistant Professor of Biology and Geography*  
 Timothy A. Lyerla, Ph.D., *Assistant Professor of Developmental Genetics*  
 Robert G. Sherman, Ph.D., *Assistant Professor of Physiology*  
 Margaret E. Anderson-Olivo, Ph.D., *Assistant Professor (Affiliate) of Physiology*  
 George Camougis, Ph.D., *Professor (Affiliate) of Physiology*  
 Ian D.K. Halkerston, Ph.D., *Professor (Affiliate) of Endocrinology*  
 Harry L. Jacobs, Ph.D., *Associate Professor (Affiliate) of Physiology*  
 Warren Litsky, Ph.D., *Professor (Affiliate) of Microbiology*  
 Peter J. Morgane, Ph.D., *Professor (Affiliate) of Neurophysiology*  
 Fernand G. Peron, Ph.D., *Professor (Affiliate) of Biochemistry; Director of Steroid Training Program*  
 Harris Rosenkrantz, Ph.D., *Professor (Affiliate) of Biochemistry*

## UNDERGRADUATE PROGRAM

Two majors are available. Type A is most suitable for those intending to apply for graduate studies in biology, medicine, dentistry, etc. This program is more prescribed and courses in the major must be taken for letter grades. The Type B major allows the student to take a selection of courses in related fields of his own choosing. It is particularly suitable for those with interests spanning several departments. Courses in related fields, as indicated below, may be taken on a Pass-No Record option for the Type B major only.

A Departmental Major Type A must take 30 credits in biology of which 20 credits must be in 200 (or 300) courses, however, only 8 of the 20 credits may be in the special problems course 260. No single "introductory biology course" will be prerequisite for all other courses in biology (as heretofore) but students must fulfill prescribed prerequisites for specific courses.

The Type A major must take, in related fields, Chemistry 11, a year of introductory Physics, and at least one additional year course in chemistry, physics, or geology including in each case the laboratory for a minimum total of 26 semester hours or three year courses. Additionally, the Type A major must take a full year of Mathematics 12 or 15. None of the aforementioned courses may be taken on a "pass-no record" option.

A Type B major must take 30 credits (for letter grades) in biology of which 20 credits must be in 200 (or 300) courses, however, only 8 of the 20 credits may be in special problems course 260. In related fields the Type B major must take 8 credits in Chemistry, including laboratory, and 18

additional credits chosen from Chemistry; Computer Science; English 214 (Darwinism); Geology; Mathematics; Philosophy 17 (Philos. of Science); Physics; Psychology 222a,b (Physiology of Behavior); 224 (Human Behavior and Nervous System Functioning); 229b (Advanced Practicum in Physiological Psychology); Sociology 12a (Social Anthropology); or any other relevant courses approved by petition.

At least 36 semester hours of a major's program (Type A or B) must be taken from courses outside the field of biology, chemistry, geology, mathematics, physics, nor include any of the courses specified in the preceding paragraphs.

The Department strongly advises all majors to select and consult with an advisor for obtaining the maximum benefits which the department has to offer.

### HONORS PROGRAM

An Honors Program is available to especially well qualified majors and requires the student to engage in an independent research project during the senior year together with meeting other departmental requirements, i.e., a broad distribution of courses, quality grades, and an honors thesis and examination. Frequently the Honors Project is the continuation of research begun during the summer under the National Science Foundation Undergraduate Research Participation Program.

### GRADUATE PROGRAM

The department offers courses leading to Master of Arts and Doctor of Philosophy degrees in specialized phases of bacteriology, biochemistry, botany, cytology, embryology, genetics, marine biology, physiology and zoology. Admission to the graduate program assumes adequate preparation in the basic sciences, an overall undergraduate record of B or better, and satisfactory standing in the Graduate Record Examination. Tuition scholarships and Teaching Assistantships are available. Detailed information may be obtained from the department chairman.

*Master of Arts:* The program usually requires three or four semester of academic work and includes teaching experience and research culminating in an acceptable thesis.

*Doctor of Philosophy:* The requirements are identical with those of the University and can be found in the catalog section on The Graduate School and includes teaching experience. The student's program is planned according to his needs with his program director.

### TRAINING PROGRAM FOR STEROID BIOCHEMISTRY

A Training Program for Steroid Biochemistry has been established at the University through the cooperation of the Department of Biology and the Worcester Foundation for Experimental Biology with the support of the National Cancer Institute and the U.S. Public Health Service. Post-doctoral fellowships are available for persons possessing the Ph.D., M.D., or equivalent training. Further information may be obtained from the *Program Director, Dr. Fernand G. Peron.*

### COURSES

#### 105a. BIOLOGY AND MAN.

An introductory survey course for non-majors. Three lectures per week.

*Three semester hours.*

Mr. Nunnemacher.

108a. PRINCIPLES OF BIOLOGY.

Participants will consider the major generalizations in the biological sciences with emphasis on cellular and molecular aspects of the discipline. The laboratory/discussion sequence will introduce some of the methodologies that permit the student to participate in a scientific endeavor and will emphasize the analysis and interpretation of data. Three lectures and one laboratory/discussion period per week (limited to 50 students).

*Four semester hours.*

Mr. Reynolds.

109b. MICROBIOLOGY.

A survey of the protists (with emphasis on the bacteria), their activities and the methods by which they are studied. Three lectures and three hours of laboratory work per week (limited to 40 students).

*Four semester hours.*

Mr. Reynolds.

110a. BOTANY.

A survey of the taxonomy, structure, and physiology of plants. Three lectures and one laboratory period per week.

*Four semester hours.*

Mr. Johansen.

111b. ZOOLOGY.

A survey treating the evolution of the major animal phyla with emphasis on structural and functional adaptations, and principles of ecology. Three lectures and one laboratory period per week.

*Four semester hours.*

Mr. Nunnemacher.

112a. COMPARATIVE ANATOMY.

A comparative study of the morphology of the vertebrates with emphasis on the evolution of animals from fish to man. Prerequisite: 111. Two lectures and two laboratory periods per week.

*Four semester hours.*

Mr. Nunnemacher.

113a. ALGAE AND FUNGI.

Representative examples of the major groups of algae and fungi are studied with emphasis on their structure, interrelationships and adaptation to their environment. Prerequisite: A course in botany or consent of instructor. Two three-hour lecture-laboratory periods per week.

*Four semester hours.*

Mr. Johansen.

114a. PHYCOLOGY.

Not offered, 1972-73.

The structure, function and interrelationships of fresh-water and marine algae will be studied with a view to understanding their role in the biosphere. Prerequisite: A course in botany or consent of the instructor. Three lectures and one laboratory period per week.

*Four semester hours.*

Mr. Johansen.

115b. FLOWERING PLANTS.

An introduction to the classification, evolution, ecology, and economic importance of flowering plants, with emphasis on the New England flora. Ferns and fern-allies will also be included. Short field trips will be made to nearby areas for examination of the spring flora. A collection of plants will be encouraged but not required. One three-hour lecture-laboratory period per week.

*Three semester hours.*

Mr. Ahmadjian.

**117a. PRINCIPLES OF ECOLOGY.**

A course in basic ecological theory governing organism-environment interrelationships. Population dynamics, energy flow, zoogeography, community ecology, as well as ecological methods and environmental problems will be included. Three lectures per week.

*Three semester hours.*

Mr. Coull.

**118a. GENETICS.**

Principles and problems of genetics.

*Three semester hours.*

Mr. Lyerla.

**119a. GENETICS LABORATORY.**

Concurrent with 118a. One laboratory period per week.

*One semester hour.*

Mr. Lyerla.

**120b. HISTOLOGY.**

The microscopic anatomy of tissues and organs of mammals. Prerequisite: 112. Two lectures and two laboratory periods per week.

*Four semester hours.*

Mr. Nunnemacher.

**121. MICROTECHNIQUE.**

A laboratory course in the preparation of histological sections. Three afternoons a week or the equivalent.

*Three semester hours.*

Mr. Nunnemacher.

**137b. CELLULAR BIOLOGY.**

The cell as a structural and functional unit. Introduction to the physiochemical properties and metabolic roles of molecules and macromolecules of cellular origin. Discussion of the roles of the nucleus and cytoplasm in the regulation of cellular processes. Three lectures per week. Prerequisite: Biology 108 or equivalent.

*Three semester hours.*

Mr. Curtis.

**182a. PRIMATE SOCIAL BEHAVIOR AND HUMAN EVOLUTION.**

The study of the social behavior of monkeys and apes highlights central problems in psychological, zoological, and anthropological approaches to behavior. It also has important implications for the past evolution and present nature of man's sociality (see Psychology 182).

*Four credit hours.*

Mr. Thompson.

**210b. PLANT STRUCTURE.**

Not offered, 1972-73.

Cells, tissues and organs of vascular plants will be studied with a view to understanding how these parts integrate to form the whole plant. Prerequisite: A course in botany or consent of instructor. Three lectures and one laboratory period per week.

*Four semester hours.*

Mr. Johansen.

**212b. SEMINAR IN PLANT ECOLOGY.**

Not offered, 1972-73.

Interactions between plants and their physical and biological environments. Prerequisite: 110 and 117 or consent of instructor.

*Three semester hours.*

Mr. Johansen.



## 70 BIOLOGY

### 213b. PLANT PHYSIOLOGY.

An introduction to the function and chemistry of plants. Three lectures, one laboratory period per week. Prerequisite: one course in botany and one in chemistry.

*Four semester hours.*

Mr. Brink & Mr. Johansen.

### 214b. SEMINAR IN PHYCOLOGY.

Selected topics dealing with algae from the structural, physiological or ecological points of view. Prerequisite: 110 and 113 or consent of instructor.

*Three semester hours.*

Mr. Johansen.

### 215b. INVERTEBRATE ZOOLOGY.

A detailed survey on the diversity of invertebrates. Anatomical and histological examination of selected types, concepts of evolution and speciation. Prerequisite: two semesters of biology or consent of instructor. Two lectures and two laboratory periods per week.

*Four semester hours.*

Mr. Coull.

### 216a. AQUATIC FIELD ECOLOGY.

Field and laboratory experience in aquatic biology. An ecosystem analysis of a local lake. Prerequisite: 117. One lecture, three laboratory sessions per week.

*Four semester hours.*

Mr. Coull.

### 217b. BIOLOGICAL OCEANOGRAPHY.

A seminar on the composition of the marine biosphere in relation to descriptive physical, chemical and geological oceanography. Two lectures per week and a three-day oceanic cruise on R/V EASTWARD. Prerequisite: 117 and consent of instructor.

*Three semester hours.*

Mr. Coull.

### 221b. EMBRYOLOGY.

Consideration of the fundamentals of vertebrate embryology. Two lectures and two laboratory periods per week. Prerequisite: Biology 112 or consent of instructor.

*Four semester hours.*

Mr. Lyerla.

### 224b. NEUROANATOMY.

Not offered, 1972-73

The structural and functional organization of the central nervous system of man. Prerequisite: Biology 112 or consent of instructor. Three lectures per week.

*Three semester hours.*

### 225a. ELECTRON MICROSCOPY.

Introduction to the principles of electron optics, use of the electron microscope, preparation of specimens and the techniques of electron microscopy applicable to biological investigations. Two lectures and two laboratory periods per week. Prerequisite: permission of the instructor.

*Four semester hours.*

Mr. Curtis.

### 228. SEMINAR IN DEVELOPMENTAL GENETICS.

A survey of modern concepts concerning genetic control of differentiation and development. Discussions emphasize primarily metabolic controls of differential protein synthesis leading to novel

cellular phenotypes in organisms from bacteriophage to man. Prerequisite: 118 or consent of instructor.

*Three semester hours.*

Mr. Lyerla.

#### 230a. BIOLOGY: THE STATE OF THE ART.

A seminar for seniors and beginning graduate students who are interested in assessing the progress that has been made in approaching the outstanding questions in the biological sciences. Participants do not have to be majors in the biological sciences, but will be expected to be literate in chemistry and one or more of the sub-disciplines of biology. Discussions will be concerned with, and move out from, the various reports of the Survey Committee on the Life Sciences, a sub-committee sponsored by the National Academy of Science. Permission of instructor required. Two 75 minute meetings per week.

*Three semester hours.*

Mr. Reynolds.

#### 232a. BACTERIOLOGY.

The biology of the bacteria and certain related forms, with emphasis on their ecological roles. Prerequisite: Bio. 109 or its equivalent, at least one year of college level chemistry, and the consent of the instructor. Two lectures and two laboratory/discussion periods per week (limited to 20 students).

*Four semester hours.*

Mr. Reynolds.

#### 232b. SELECTED TOPICS IN BACTERIOLOGY.

A seminar for advanced undergraduates and beginning graduate students. Prerequisite: At least two semesters of course work in microbiological areas, demonstrated competence in bacteriology, and consent of instructor. Two 75 minute meetings per week. SPECIAL PROBLEMS (260) may be taken concurrently for additional variable credit.

*Three semester hours.*

Mr. Reynolds.

#### 235a. SEMINAR IN CELLULAR BIOLOGY.

Prerequisite: 137 or consent of instructor.

*Three semester hours.*

Mr. Curtis.

#### 239b. BIOLOGICAL SYSTEMS AND WATER POLLUTION CONTROL.

An attempt to deal with those problems associated with water pollution that are amenable to solution through the application of concepts and approaches of the biological sciences. The participants do not have to be biology majors, but will be expected to be literate in one or more of the scientific disciplines. Permission of the instructor required. Two 75 minute meetings per week. Bio. 260 - SPECIAL PROBLEMS - may be taken concurrently for additional variable credit.

*Three semester hours.*

Mr. Reynolds.

#### 240b. GENERAL PHYSIOLOGY.

Introduction to the physical and chemical phenomena underlying the functions common to living organisms. Two lectures and two laboratory periods per week. Prerequisites: Biology 111, Chemistry 11 and Introductory Physics, or consent of instructor.

*Four semester hours.*

Mr. Sherman.

#### 241b. ENDOCRINOLOGY.

General principles of vertebrate endocrinology.

*Three semester hours.*

Not offered, 1972-73.

Mr. Halkerston.

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### 242a. COMPARATIVE ANIMAL PHYSIOLOGY.

Not offered, 1972-73.

### 247b. SEMINAR IN NEUROPHYSIOLOGY.

Not offered, 1972-73.

A seminar on the principles of transmission, integration and storage of information in neuronal pathways and other considerations of the nervous system. Prerequisite: A course in neurophysiology or its equivalent or consent of the instructor.

*Three semester hours.*

Mr. Sherman.

### 249b. NEUROPHYSIOLOGY.

Physiology of central and peripheral nervous systems, receptors and muscles, considered in both vertebrates and invertebrates. Three lectures and one laboratory period per week. Prerequisite: Biology 240 or consent of the instructor.

*Four semester hours.*

Mr. Sherman.

### 250. PRINCIPLES OF APPLIED IMMUNOLOGY.

Not offered, 1972-73.

An introduction to the basic principles, problems and theories concerning the immunological behavior of man and the animal kingdom, familiarizing the student with the experimental evidence upon which are based the present concepts of immune mechanisms. The course is oriented to demonstrate the basic methods of experimental immunology and the application of such methods to biological problems.

*Three semester hours.*

Mr. Rosenkrantz.

### 260a,b. SPECIAL PROBLEMS.

Advanced semi-independent study of an approved topic under the direction of a departmental member. Consent of instructor required. Required for honors in biology.

*Three or four semester hours.*

Staff.

### 268b. PRINCIPLES OF PHARMACOLOGY.

Not offered, 1972-73.

This course is intended to acquaint the student or research worker with established principles and the more important phenomena involved in the study of pharmacology. Particular emphasis is placed on the quantitative aspects of the interaction of chemical compounds or drugs with biological systems. The principal pharmacological actions of several important drugs are illustrated.

*Three semester hours.*

### 270. BIOCHEMISTRY.

The principles of mechanisms of biochemical reactions in an understanding of the metabolism of foodstuffs and the role of enzymes, nucleic acids and hormones. An acquaintance with the instrumentation in biochemical research will be presented. Prerequisite: Chemistry 13. Three lectures, one laboratory per week.

*Four semester hours each semester.*

Mr. Brink.

### 271b. BIOCHEMISTRY OF NUCLEIC ACIDS.

Not offered, 1972-73.

The chemical and physical properties of RNA and DNA derived from various sources will be considered with respect to their isolation, separation and characteristics. The functional role and biological significance of the nucleic acids in subcellular organelles will be examined. Prerequisite: Biology 270 or consent of instructor.

*Three semester hours.*

Mr. Brink.

**273b. NEUROCHEMISTRY.**

The metabolic aspects of brain amines and biopolymers will be considered in relation to neural function. Effects of drugs on memory processes will be discussed in terms of biochemical mechanisms.

Prerequisite: Biochemistry 270 or consent of instructor.

*Three semester hours.*

Mr. Brink.

**275a. CLINICAL BIOCHEMISTRY.**

Not offered, 1972-73.

Clinical or diagnostic biochemistry features a study of biochemical parameters in health and disease determined on blood, urine and other biological fluids. This course will encompass clinically significant facts pertaining to absorption, transport, distribution, function, metabolism and excretion of certain proteins, lipids, carbohydrates, hormones, enzymes, vitamins and minerals. Quantitative detection procedures will be discussed and demonstrated. Prerequisite: Chemistry 11, Biology 108, 111, or 270 or its equivalence in laboratory training or consent of instructor. Three lectures and demonstration per week.

*Three semester hours.*

Mr. Rosenkrantz.

**280a. THE HISTORY AND PRESENT STATUS OF INSTINCT.**

It has long been argued and long contested that man and animal alike are guided in their social behavior by innate tendencies. This offering will emphasize the devious and irrational course of progress in a scientific field of study so loaded with social and philosophic implications. Permission of the instructor. (See Psychology 280).

*Four credit hours.*

Mr. Thompson.

**283b. PRINCIPLES OF BEHAVIOR AND HUMAN EVOLUTION.**

From a broad survey of the social systems of animals, this course will attempt to distill the general principles that have directed the evolution of animal behavior. (See Psychology 283).

*Four credit hours.*

Mr. Thompson.

**291a. QUANTITATIVE METHODS FOR BIOLOGY.**

Elements of statistical methods will be stressed. These will include hypothesis testing, design, and sampling. Also a brief introduction to computer programming and model building techniques will be included.

*Four semester hours.*

Mr. Howard.

**292a. PLANTS, MAN, AND WATER.**

The water using requirements of agricultural systems from ancient to modern times will be examined.

*Four semester hours.*

Mr. Howard.

**293a. MODEL BUILDING TECHNIQUES.**

*Four semester hours.* (See Geography 248).

Mr. Howard.

**300. READINGS AND RESEARCH IN BIOLOGY.**

*Three to four semester hours.*

Staff.

**310. SCIENTIFIC WRITING FOR GRADUATE STUDENTS.**

An introduction to the techniques of writing scientific papers. The principal assignment will be the writing of a journal article and a detailed analysis of the steps involved. Related areas which will be



covered include searching the scientific literature, handling of quantitative data relevant to biological systems, and oral presentation of a scientific paper. Prerequisite: permission of the instructor.

*Three semester hours.*

Mr. Ahmadjian.

### 325a. SEMINAR IN ULTRASTRUCTURE.

Discussion of the structure of macromolecules and subcellular organelles in relation to their biological functions. Evidence obtained by a variety of physical and chemical methods will be considered, particular emphasis being placed on electron microscopic studies. Consent of instructor required.

*Three semester hours.*

Mr. Curtis.

### 332b. SEMINAR IN BACTERIOLOGY.

Not offered, 1972-73.

Selected topics in bacterial ecology and physiology. Consent of instructor required.

*Three semester hours.*

Mr. Reynolds.

### 334b. SEMINAR IN ANIMAL BEHAVIOR.

A consideration of contemporary issues in the phylogeny and ontogeny of behavior in general and social behavior in particular. (See Psychology 334).

*Four semester hours.*

Mr. Thompson.

### 335a. SEMINAR IN ENVIRONMENTAL SYSTEMS.

Systems analysis and models related to environmental management. Programming experience required. (See Geography 354).

*Three semester hours.*

Mr. Howard.

### 341a. SEMINAR IN ENDOCRINOLOGY.

Not offered, 1972-73.

*Three semester hours.*

Mr. Curtis.

### 345b. COMPARATIVE NEURO-MUSCULAR SYSTEMS

A survey of the neurons and muscular systems in the invertebrate phyla with reference to their structure and function. Prerequisite: 240, and consent of instructor.

*Three semester hours.*

Mrs. Anderson-Olivo

### 350. GRADUATE SEMINAR.

Staff.

### 355a. PROBLEMS IN BEHAVIORAL PHYSIOLOGY.

Not offered, 1972-73.

Topics will be chosen in which interdisciplinary substantive material and methods from neurophysiology, endocrinology, nutrition, sensory and regulatory physiology, and psychology (learning, modification, and sensation and perception) will be applied to simple behavioral systems in the whole organism. Prerequisite: Biology 240.

*Three semester hours.*

Mr. Jacobs.

### 360. MASTER'S THESIS.

Staff.

### 390. DOCTORAL DISSERTATION.

Staff.

### 393b. ADVANCED MODELLING TECHNIQUES.

*Four semester hours.* (See Geography 348).

Mr. Howard.

The Program in Biomedical Engineering is a graduate program under the joint sponsorship of Clark University and Worcester Polytechnic Institute. The aim of the program is to combine the resources of the two institutions to provide special education in this rapidly developing interdisciplinary area. Students entering the program must have a bachelor's degree in mathematics or one of the basic or engineering sciences. The master's program will include a minimum of five full courses taken at both institutions. All students will be expected to achieve some basic knowledge in biology, chemistry, engineering, mathematics and physics. Since a thesis on research is also required, the program will normally require at least two years of study. In general, the requirements for the degree will be consistent with the requirements for a master's or doctoral degree at both institutions. The detailed requirements for each student will be worked out by a Committee on Biomedical Engineering made up of faculty members from both institutions. Students enrolled at Clark will receive an M.A. or Ph.D. in Biology, the actual degree noting the cooperation of W.P.I. Conversely, students enrolled in the first instance at W.P.I. will receive the M.S. or Ph.D. in Biomedical Engineering, with the cooperation of Clark indicated on the degree.

For further information, write to: The Director, Biomedical Engineering Program, Clark University, Worcester, Massachusetts 01610.

## Chemistry

### DEPARTMENT FACULTY

Harry C. Allen, Jr., Ph.D., *Professor of Chemistry, Department Chairman*

Marcel Gut, Ph.D., *Professor (Affiliate) of Chemistry*

Edward N. Trachtenberg, Ph.D., *Professor of Chemistry*

Daeg S. Brenner, Ph.D., *Associate Professor of Chemistry*

Karen L. Erickson, Ph.D., *Associate Professor of Chemistry*

Wen-Yang Wen, Ph.D., *Associate Professor of Chemistry*

Allan M. Zwickel, Ph.D., *Associate Professor of Chemistry*

Paul T. Inglefield, Ph.D., *Assistant Professor of Chemistry*

Elias Meymaris, Ph.D., *Assistant Professor (Affiliate) of Chemistry*

Robert I. Morse, Ph.D., *Assistant Professor of Chemistry*

### UNDERGRADUATE PROGRAM

In offering a variety of introductory courses in the major branches of modern chemistry, the department seeks to satisfy the needs and desires of (1) those interested in pursuing a career in chemistry, (2) those in related science areas, the proper understanding of which requires a background in chemistry, and (3) the non-scientists who want some knowledge of chemistry as part of their liberal education. In addition to these courses, a large number of more specialized subjects are treated in advanced courses.

The requirements for the chemistry major are eight semester hours beyond Chemistry 11 and includes one year of organic chemistry (130), one year of physical chemistry and physical chemistry laboratory (180, 181, 190, 191) and a semester each of analytical (140) and inorganic (150) chemistry. In addition, two semesters of physics, Physics 12 and 19, and two semesters of mathematics beyond Mathematics 11 are required. Advanced biology, advanced mathematics and/or advanced physics courses may be substituted for two semesters of chemistry with departmental approval. As credit toward the major, Chemistry 173 is inadmissible and only one semester of Chemistry 214 or

215 may be used. In addition, all students must satisfactorily complete 36 semester hours outside of Group A and courses in statistics.

Students planning graduate study in chemistry or additional professional training in the sciences are urged to take Chemistry 135, 200, 230, and/or advanced mathematics and physics courses depending on the area of interest. A reading knowledge of German, French, or Russian is also recommended. Chemistry majors are encouraged to undertake independent research projects in their senior year.

The usual course sequence has at least Chemistry 11 and 130, Mathematics 12, and Physics 11 completed by the end of the second year. Chemistry 180, 181a, 190, 191b, 135, and 140 are usually taken the junior year. It is advantageous to take advanced mathematics or physics courses and/or biochemistry at this time as well. Honors or Special Projects may be started after completion of Chemistry 180. Chemistry 200, 210, or 230, as well as other advanced level courses and Honors or Special Projects are normally taken during the senior year.

An entering student with a sound background in chemistry is encouraged to take a placement exam at the beginning of the academic year. Satisfactory performance on this examination can satisfy the Chemistry 11 prerequisite for Chemistry 130. This will permit completion of the requirements for the major no later than the junior year, leaving the senior year open for more sophisticated pursuits. Any student considering a chemistry major is urged to arrange for a conference with a member of the department as early as possible, preferably during the first few days of the freshman year. However, it should be noted that the major requirements can be met even if no science courses have been taken freshman year.

#### GRADUATE PROGRAM

The department offers programs leading to the degrees of Masters of Arts and Doctor of Philosophy with specialization in various fields of chemistry and in chemical physics. Emphasis is placed on tailoring programs to fit the specific needs and desires of the graduate student. To facilitate this goal, a committee of interested faculty works with each student to advise and review his progress in research work and together with the student defines the formal course work requirements. In the case of Masters degree candidates the requirements are essentially those of the University as stated elsewhere in the catalog. Up to one year's equivalent of teaching apprenticeship will be required of all candidates for advanced degrees.

In addition to formal course work the student must pass qualifying and preliminary examinations and the Department language requirement must be met. For further details the appropriate Departmental publications should be consulted.

Graduate scholarships, teaching assistantships and research fellowships are available. Further information on these awards may be obtained from the department chairman.

#### COURSES

##### 1b. THE ROLE OF CHEMISTRY IN SOLVING NATIONAL PROBLEMS.

This course is aimed primarily at the non-science major to acquaint them with the pressing problems facing the nation and the role chemistry can play in solving them. Among the problems to be discussed are air and water pollution, solid waste disposal, mineral supply, urban renewal, transportation, land reclamation and health. The course will consist of lectures and discussions.

*One semester hour.*

Mr. Allen.

##### 9. NON-MATHEMATICAL INTRODUCTION TO PHYSICAL SCIENCE.

The principles of chemistry are applied to areas as diverse as biology, geology, physics and astronomy.

No previous background in science is assumed. Three lectures per week.

*Four semester hours each semester.*

Mr. Zwickel.

#### 10. CHEMISTRY FOR NON-SCIENCE MAJORS.

A one semester course for non-science majors concentrating on fundamentals of chemistry. The course is intended to develop a qualitative feeling about chemistry and its role in the modern world. Three hours of lectures a week with a four hour laboratory.

*Four semester hours.*

Mr. Morse.

#### 11. GENERAL CHEMISTRY.

Systematic study of the elements and their principal compounds and the fundamental laws and theories of chemistry. Primarily for students majoring in the sciences who have had high school chemistry and physics courses. Three lectures, one recitation, and four laboratory hours per week.

*Five semester hours each semester.*

Mr. Inglefield, Mr. Brenner.

#### 130. ORGANIC CHEMISTRY.

Lectures on the principles of organic chemistry and a laboratory study of the preparation and physical, chemical and spectral properties of important classes of organic compounds. Three lectures and four laboratory hours per week. Prerequisite: Chemistry 11.

*Five semester hours each semester.*

Mr. Trachtenberg.

#### 135. QUALITATIVE ORGANIC ANALYSIS.

Not offered, 1972-73.

Laboratory study of the identification of organic compounds by both classical and modern instrumental techniques. Prerequisite: Chemistry 13 or consent of the instructor. One hour conference and seven hours of laboratory per week.

*Four semester hours.*

Miss Erickson.

#### 140b. ANALYTICAL CHEMISTRY.

Theoretical principles and technical methods employed in determining the composition of matter. Two lectures and six laboratory hours per week throughout the semester. Prerequisites: Chemistry 11, 180, and 190 concurrently.

*Four semester hours.*

Mr. Morse.

#### 150a. INORGANIC CHEMISTRY.

Descriptive chemistry of the elements. Prerequisite Chemistry 11 or equivalent. Two hours lecture and four hours laboratory per week.

*Three semester hours.*

Mr. Zwickel.

#### 173. MATHEMATICS FOR CHEMISTS.

Discussion of such topics as series, fourier series, special functions, fourier transforms, matrices. One lecture per week.

*Variable credit.*

Mr. Morse.

#### 180a. PHYSICAL CHEMISTRY I.

Principles of physical chemistry applied to gases, liquids and solids; chemical thermodynamics; solution chemistry. Three lectures per week. Prerequisites: Physics 12 and 19, Mathematics 12, a grade of C or better in Chemistry 11 or 13 or permission of instructor; Chemistry 13 and 14a may be taken



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concurrently. Additional course work in mathematics is recommended.

*Four semester hours.*

Mr. Wen.

### 181a. PHYSICAL CHEMISTRY LABORATORY I.

Laboratory experiments in physical chemistry, techniques of measurement and technical report writing. To be taken concurrently with Chemistry 180. Required of all chemistry majors. One four hour meeting per week.

*One semester hour credit.*

Mr. Wen.

### 190b. PHYSICAL CHEMISTRY II.

Electrode processes, chemical kinetics and atomic and molecular spectroscopy. Prerequisite: Chemistry 180a. Three lectures per week.

*Four semester hours.*

Mr. Wen.

### 191b. PHYSICAL CHEMISTRY LABORATORY II.

Laboratory to accompany Chemistry 190. Required of all chemistry majors. One four hour meeting per week.

*One semester hour credit.*

Mr. Wen.

### 200a. PHYSICAL CHEMISTRY III.

Elementary quantum-mechanical treatment of the structure of nuclei, atoms and molecules. Three lectures and one discussion per week. Prerequisite: Chemistry 180 and 190.

*Four semester hours.*

Mr. Allen.

### 210b. PHYSICAL CHEMISTRY IV.

The application of group theory to problems of chemical interest such as molecular vibrations, hybrid orbitals and molecular orbital theory. Three lectures and one discussion per week. Prerequisite: Chemistry 200 or equivalent.

*Four semester hours.*

Mr. Ailen.

### 214. SPECIAL PROJECTS.

Individual work of an investigative nature which may include a search of chemical literature as well as laboratory work.

*Three semester hours each semester.*

Staff.

### 215. HONORS COURSE.

Primarily for majors seeking departmental honors in chemistry. A laboratory research project and participation in departmental seminar.

*Three semester hours each semester.*

Staff.

### 230b. PHYSICAL ORGANIC CHEMISTRY.

Fundamentals of organic chemistry. Molecular structure, acidity and basicity, kinetics and mechanisms with emphasis on the most recent advances in organic chemistry theory. Prerequisites: Chemistry 13, 180a, 190b or consent of the instructor.

*Three semester hours.*

Mr. Trachtenberg.

### 242b. NUCLEAR SCIENCE.

Not offered, 1972-73.

Fundamentals of nuclear chemistry and physics; production, isolation, identification and measurement

of radioactive atoms. Three lectures and three laboratory hours per week. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Brenner.

#### 280b. INSTRUMENTAL METHODS.

The principles and application of modern instrumental techniques to the separation and analysis of mixtures and for the characterization of pure compounds. Two lectures and six laboratory hours per week. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Brenner.

#### 300. RESEARCH.

*Three to fifteen semester hours each semester.*

Staff.

#### 312b. INORGANIC CHEMISTRY.

Theoretical and descriptive inorganic chemistry. Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Zwickel.

#### 322b. THERMODYNAMICS.

Applications of classical thermodynamics to chemical systems.

*Three semester hours.*

Mr. Morse.

#### 323b. STATISTICAL CHEMISTRY.

Statistical mechanical analogs of thermodynamic functions and their application to chemical systems.

Prerequisite: consent of the instructor.

*Three semester hours.*

Mr. Wen.

#### 333b. SYNTHETIC ORGANIC CHEMISTRY.

Not offered, 1972-73.

Lectures on synthesis of organic molecules emphasizing scope and limitations of general methods, mechanism and stereochemistry. Synthesis of carbon to carbon bonds, oxidation and reduction.

Prerequisite: Chemistry 230a, or consent of the instructor. Offered in alternate years.

*Three semester hours.*

Miss Erickson.

#### 335b. NATURAL PRODUCTS.

Not offered, 1972-73.

The chemistry of selected naturally occurring compounds. Structure determination, synthesis, mechanistic interpretation of exotic transformations, and biogenetic theory. Prerequisite: consent of the instructor. Offered in alternate years.

*Three semester hours.*

Miss Erickson.

#### 340b. QUANTUM CHEMISTRY.

Elementary quantum mechanics of simple systems, properties of wave functions, approximation methods for complex systems.

*Three semester hours.*

Mr. Morse.

#### 341a. ADVANCED QUANTUM CHEMISTRY.

Approximation methods, atomic states, spectroscopy and molecular methods. Prerequisite: Chemistry 340b or consent of the instructor.

*Three semester hours.*

Mr. Morse.

344a. SELECTED TOPICS IN ADVANCED NUCLEAR CHEMISTRY.

Discussion of current experimental and theoretical literature in nuclear reactions, fission, and nuclear spectroscopy. Prerequisite: Chemistry 242b or equivalent.

*Three semester hours.*

Mr. Brenner.

350. SEMINAR.

Reports on research work and discussions of recently published work.

*No credit.*

Guest Lecturers, Staff and Graduate Students.

360b. COORDINATION COMPOUNDS.

Chemical and physical properties of complexes, including theories of coordination, stereoisomerism, reaction mechanisms and solution stabilities. Offered in alternate years.

*Three semester hours.*

Mr. Zwickel.

361b. MOLECULAR STRUCTURE.

Physical methods relevant to the determination of the structure of molecules (x-rays, electron diffraction, magnetic resonance, electronic properties, etc.). Prerequisite: consent of the instructor. Offered in alternate years.

*Three semester hours.*

Mr. Inglefield.

369a. ELECTRONIC SPECTROSCOPY.

Not offered, 1972-73.

Introduction to the studies of ultraviolet and visible absorption spectra as well as emission spectra.

Prerequisite: consent of the instructor. Offered in alternate years.

*Three semester hours.*

Mr. Wen.

379b. SPECIAL TOPICS.

Research seminars; reports by graduate students.

*Three semester hours.*

Staff.

380. RESEARCH CONFERENCE.

Informal reports of research work being done in the laboratory.

*No credit.*

Staff and Graduate Students.

## Computer Science

The courses in the area of Computer Science listed below are available to Clark students. They involve the use of the IBM 1130 Computing System located on campus. For other Computer Science courses see the Worcester Tech catalog.

101a. FORTRAN IV PROGRAMMING.

An introductory programming course designed for students with no mathematics beyond high school algebra. The fundamentals of the FORTRAN IV programming language are introduced. Students

develop a working knowledge and understanding of number representation and arithmetic, arrays and indexing, character representation and manipulation, subprogram definition and parameter passing, loaders and assemblers, various algorithms, and an overview of third generation computers.

*Three semester hours.*

Mr. Larson.

#### 102b. COMPUTER APPLICATIONS.

The topics of storage and retrieval, file design, simulation, queuing, sorting, and computer graphics are covered. Several projects requiring programming skills are assigned. Prerequisite: Computer Science 101 or consent of instructor.

*Three semester hours.*

Mr. Larson.

#### 103b. INTRODUCTION TO COBOL PROGRAMMING.

The concepts of COBOL (COmmon Business Oriented Language) are covered. Completion of a series of programming assignments designed to illustrate the capabilities and typical uses of the language is required. Previous programming experience is recommended.

*Three semester hours.*

#### 140a. ASSEMBLER LANGUAGE PROGRAMMING.

This course is designed to enable the student to write substantive programs in assembler language for the IBM 1130. While a knowledge of a higher level language is not necessary, some familiarity with computer operations would be helpful. Otherwise, permission of the instructor is required.

*Three semester hours.*

Mr. Stubbe.

#### 201b. ADVANCED COMPUTER PROGRAMMING.

This course is designed for students with previous programming experience. Each student is expected to select and carry to completion a project requiring substantive computer analysis in machine language, assembler, or any higher level language.

*Three credit hours.*

Mr. Howard, Mr. Stubbe.

#### GEOGRAPHY 295b. COMPUTER GRAPHICS.

#### MATHEMATICS 135. PATTERN RECOGNITION.

## Economics

### DEPARTMENT FACULTY

Roger C. Van Tassel, Ph.D., *Professor of Economics, Department Chairman\**

James A. Maxwell, Ph.D., *Professor of Economics, Emeritus*

Howard W. Nicholson, Ph.D., *Professor of Economics*

David Ott, Ph.D., *Professor of Economics*

Attiat Ott, Ph.D., *Professor of Economics*

Harold T. Moody, Ph.D., *Associate Professor of Economics and Business Administration*



Frank W. Puffer, Ph.D., *Associate Professor of Economics*  
 Peter Sloane, Ph.D., *Associate Professor of Economics and Education*  
 Alan F. Gummerson, Ph.D., *Assistant Professor of Economics*  
 Donald E. Wise, Ph.D., *Assistant Professor of Economics*  
 Robert C. Hsu, Ph.D., *Assistant Professor of Economics*  
 Vitorio Corbo, Ph.D., *Assistant Professor of Economics*

\*On leave, first semester

## UNDERGRADUATE PROGRAM

The undergraduate program is designed to give the student a comprehensive grasp of the underlying principles and functions of economic institutions, and to develop habits of systematic thought. Economics 11 is a prerequisite to most courses in Economics. Majors in Economics are required to take Economics 205a and 205b (Micro and Macro) and are strongly advised to take Economics 160, Introduction to Statistical Method. Students planning on graduate study in Economics are advised to elect courses in Economic Theory, Statistics and Econometrics, and Mathematics. Some courses in Economics and Business offered in the Evening College or by the Department of Management may be counted toward the major with the approval of the department chairman.

A total of at least 40 hrs. and not more than 50 hrs. in Economics courses and related subjects are required for a degree in Economics. The maximum number of hrs. may be waived in certain cases. At least 24 hrs. and not more than 36 hrs. of Economics courses are normally required. At least 12 to 16 hrs. are normally required in related subjects.

Candidates for departmental honors may engage in a program of independent study off-campus during one semester of the junior year. These students may work for business firms or government agencies in applied economic research and receive academic credit.

Some advanced courses may be offered only in alternative years. Detailed course descriptions are available at the department office and at the Registrar's office.

## GRADUATE PROGRAM

The University offers facilities for graduate study and research leading to the Master of Arts degree and Doctor of Philosophy degree in Economics for a small number of selected students.

Graduate students may elect to take a limited amount of work in related courses offered by other departments.

Scholarships and fellowships are available for a limited number of well-prepared students. These appointments exempt their holders from tuition fees and some carry stipends in varying amounts. Several teaching assistantships are also awarded which enable graduate students to gain experience in undergraduate instruction. These carry remission of tuition and a cash payment, up to \$2,600 for part-time work (one-half).

## MASTER OF ARTS PROGRAM

Students interested primarily in an M.A. Degree as a terminal degree are normally not admitted to graduate study. The M.A. may be awarded to graduate students who have completed the appropriate course and residence requirements. Students may be awarded the M.A. Degree upon satisfactory completion of the Ph.D. oral examination; or, in the case of students who do not continue toward the Ph.D., upon satisfactory completion of an approved program of 24 semester hours of course work, the writing of an M.A. Thesis and an oral examination.

A student should discuss his plans with the graduate student advisor on or before Registration Day and secure approval of his course program.

#### DOCTOR OF PHILOSOPHY PROGRAM

Two full academic years of graduate work, or its equivalent in part-time work, is necessary for admission to Ph.D. candidacy. One of these years must be spent in residence at Clark University. In residence is broadly defined as work done at Clark University under the immediate personal supervision of at least one member of the University faculty. For the degree of Doctor of Philosophy, twenty-four semester hours is a normal full-time program.

All candidates for the Ph.D. in Economics are required to demonstrate proficiency in Econometrics and Mathematical Economics, i.e., by passing designated courses offered in the Department or, in the case of prior preparation, by passing a test given by the Department.

Each student in the Ph.D. program is required to demonstrate proficiency in Economic Theory. The Economic Theory requirement includes Micro-theory, Macro-theory and the History of Doctrine. Use of mathematics may be required in the examination in Economic Theory. The student satisfies the Economic Theory requirement by passing course examinations usually at the end of the first year of graduate study. During the second year of study students will take a written comprehensive examination.

Upon completion of the Economics Theory, the comprehensive examination, and other required preparations, and after the student passes a written examination in his three special fields, he is admitted to candidacy for the Ph.D. These fields may be selected from among the following: Money and Banking, Public Finance, Industrial Organization, International Trade, Labor, Regional Economics, Econometrics, Advanced Theory or one field selected from related subjects. If Econometrics or Advanced Theory is selected as a special field, the level of performance required is substantially higher than the general requirement in Econometrics and Economic Theory for all Ph.D. candidates. The choice of fields must be cleared in advance with the graduate student advisor. Soon after having passed the full exams, each student is expected to make a presentation before an informal conference with his dissertation committee demonstrating *both* the extent of his knowledge of his Dissertation field and the feasibility of the proposal topic.

Upon completion of the Dissertation in a form acceptable to his committee, the candidate will provide a copy of the Dissertation to the Department, the staff and graduate students in the department. After a period of approximately two weeks, to permit a wider reading of the Dissertation within the department, the candidate will present his Dissertation at a seminar open to all staff and graduate students in the Department. Final approval of the Dissertation will be granted by the committee after consideration of any suggestion of changes or challenges arising from the final seminar. Unless the Dissertation is completed and defended within five calendar years from admission to candidacy, the certifying examinations must be repassed.

The dissertation must be a real contribution to knowledge, based upon independent research, convincingly presented, and acceptably written.

Some teaching experience at Clark or such other teaching as the Department may regard as equivalent, is prerequisite to the Doctor's degree.

#### COURSES

##### 11. PRINCIPLES OF ECONOMICS.

Open to freshmen. One semester course offered both semesters. Multiple sections.

*Four semester hours each semester.*

Staff.

**12b. CONTEMPORARY ECONOMICS.**

Open to Freshmen.

This course permits the non-economics major to develop a working knowledge of current economic problems. Readings which require very limited technical skill or knowledge are assigned. Students are expected to participate actively in discussions. Prerequisite: Economics 11.

*Four semester hours.*

D. Ott.

**113a. MONETARY ECONOMIC THEORY & POLICY.**

The theory of money, its role in the modern economy. Determinants of the supply of money and analysis of the role of monetary policy in stabilization policy.

*Four semester hours.*

D. Ott.

**115a. PUBLIC EXPENDITURES & TAXATION.**

Not offered, 1972-73.

Issues of priorities in the composition and size of public expenditures. Evaluation of the Federal budget (expenditures and revenues) according to criteria of efficiency, equity and administrability. Examination of goals of employment, price stability, and growth and role of fiscal policy instruments in achieving them.

*Four semester hours.*

A. Ott.

**123. SPECIAL TOPICS.**

Open to Freshmen. Course will concentrate on the economic and technological problems of transportation on environmental and other secondary effects.

*Four semester hours.*

Mr. Puffer &amp; Mr. Hohenemser.

**126. PUBLIC POLICIES TOWARD BUSINESS.**

Open to Freshmen.

A study of the problems of use of governmental power to promote or to discourage particular economic behavior. Topics include Antitrust regulation; legislation to protect consumers, and examples of government programs supplementing the market.

*Four semester hours.*

Mr. Nicholson.

**142. ECONOMICS OF UNDERDEVELOPED REGIONS.**

An analysis of underdeveloped nations. Economic, cultural, social, and political factors that have an importance in economic development. Prerequisite: Economics 11.

*Four semester hours.*

Mr. Gummerson.

**150. CRITIQUES OF THE AMERICAN ECONOMY.**

Not offered, 1972-73.

Course will examine radical critiques of U.S. economy. A neo-Marxist analysis will provide an overview followed by in-depth examinations of alleged U.S. economic imperialism, the extent of the economy's dependence on military spending, and the nature of income distribution and poverty in the U.S.

*Four semester hours.*

Mr. Gummerson.

**160a. INTRODUCTION TO STATISTICAL ANALYSIS.**

The theory and application of frequency distributions; measures of central tendency; dispersion; skewness and kurtosis. An introduction to probability theory; estimation by confidence interval; acceptance sampling; quality control; analysis of variance; and other statistical tests of significance complete consideration of univariate distribution. Prerequisite: Mathematics 11 or equivalent.

*Four semester hours.*

Staff.

**160b. INTRODUCTION TO STATISTICAL ANALYSIS.**

Problems are integrated with a systematic presentation of principles and methods. Topics include price and quantity indexes; seasonal trend and cycle analysis; linear and curvilinear regression and consideration of the stochastic (Ut) term. Finally, tests of statistical significance on the parameters of the regression equation are made. Prerequisite: Economics 160a.

*Four semester hours.*

Staff.

**176a. THE CHINESE ECONOMY.**

The economic policies, organization, performance, and structural changes in Mainland China in the twentieth century, with special emphasis on the post-1949 period.

*Four semester hours.*

Mr. Hsu.

**176b. COMPARATIVE ECONOMIC SYSTEMS.**

A survey of the theoretical models and actual workings of major contemporary economic systems: Mixed economies, market socialist economy and centrally planned economy.

*Four semester hours.*

Mr. Hsu.

**204. ECONOMIC EDUCATION.**

Designed to analyze and evaluate the content, structure and tools of social science curricula at the elementary and secondary levels. Emphasis will be upon innovative, interdisciplinary programs incorporating economic concepts. The objective will be to design experimental projects for testing under classroom conditions. Two semesters.

*Four semester hours.*

Mr. Sloane.

**205a. INTERMEDIATE ECONOMIC THEORY.**

An analysis of contemporary price theory.

*Four semester hours.*

Mr. Gummerson.

**205b. ECONOMIC THEORY — INTERMEDIATE.**

A study of contemporary theory.

*Four semester hours.*

A. Ott.

**207b. INTERNATIONAL ECONOMICS.**

Development of International Trade Theory, the balance of payments, and evaluation of major issues in international economic policy.

*Four semester hours.*

Mr. Van Tassel.

**222. LABOR AND MANPOWER.**

A survey of the nature of labor economics and labor problems, including the several approaches of organized workers and employers to these problems.

*Four semester hours.*

Mr. Wise.

**224. HISTORY OF ECONOMIC DOCTRINE.**

Not offered, 1972-73.

Beginning with brief survey of ancient writers, medieval schoolmen and mercantilist authors, this course focuses on the evolution of economic analysis from the time of classical writers to the 1960's and stresses developments in methods by which man has attempted to better understand economic phenomena.

*Four semester hours.*

Mr. Nicholson.



265a. INTRODUCTION TO ECONOMETRIC PROBLEMS.

An introduction to the problems and techniques arising in the application of statistics to economic data. Prerequisite: Economics 160a.

*Four semester hours.*

Mr. Corbo

265b. INTRODUCTION TO ECONOMETRIC PROBLEMS.

Application of econometric techniques to economic research problems. Analysis of econometric applications in the professional literature. Prerequisite: consent of instructor.

*Four semester hours.*

Mr. Puffer.

269. APPLIED ECONOMETRICS.

Discussion and application of Econometrics and other techniques to Economics. Will concentrate mainly on Macroeconomic applications.

*Four semester hours.*

Mr. Corbo.

271a,b. INTRODUCTION TO MATHEMATICAL ECONOMICS.

An introductory survey of the use of mathematical methods in economic analysis. Special attention is given to the mathematical framework of the theory of price determination. Prerequisite: consent of the instructor.

*Four semester hours each semester.*

Mr. Wise and Mr. Nicholson.

272b. MATHEMATICAL ECONOMICS.

Not offered, 1972-73.

Mathematical approach to Microeconomic Theory including general equilibrium. Intended for advanced undergraduate students with some knowledge of calculus and linear algebra. This course may be taken in lieu of Economics 205a. Prerequisite: consent of instructor.

*Four semester hours.*

Staff.

277a. REGIONAL ECONOMICS.

Not offered, 1972-73.

Theoretical and practical aspects of economic development, cyclical changes and trade between regions of the United States. Location theory, growth trends, wage and income differentials, structural unemployment and inequalities in income distribution are considered. Interregional input-output tables emphasized. Prerequisite: Economics 11, or one advanced economics course.

*Four semester hours.*

Mr. Moody.

277b. PROBLEMS IN REGIONAL ECONOMICS.

The application of regional econometric theory and regional resource management to problems in regions in the United States.

*Four semester hours.*

Mr. Moody.

280. JUNIOR HONORS.

Designed to assist honors candidates in integration of the field.

Staff.

281. SENIOR HONORS.

*Four semester hours each semester.*

Staff.

## 282. HONORS.

Eligible students selected by the department may work off campus for a summer and a semester as junior professional Economists in business, government, or industry and receive full academic credit for a semester's work. Staff.

## 301a,b. ECONOMIC THEORY, MICRO-ECONOMICS.

See graduate student advisor for list of seminars offered and current topic coverage. The theory courses are offered each year. Special field seminars are offered in response to student interest. A. Ott, Mr. Wise.  
*Four semester hours each semester.*

## 302a. ECONOMIC THEORY – MACRO.

A study of the variables of macroeconomics. Prerequisite: consent of instructor. Mr. Corbo, D. Ott.  
*Four semester hours each semester.*

## 302b. ECONOMIC THEORY – MACRO.

*Four semester hours.* Mr. Corbo.

## 303a,b. ADVANCED THEORY.

*Four semester hours each semester.* Not offered, 1972-73.  
 D. Ott.

## 313a,b. SEMINAR IN MONETARY ECONOMICS.

*Four semester hours each semester.* Not offered, 1972-73.  
 D. Ott.

## 322a,b. LABOR SEMINAR.

*Four semester hours each semester.* Not offered, 1972-73.  
 Mr. Wise.

## 325a,b. PUBLIC FINANCE SEMINAR.

*Four semester hours each semester.* A. Ott.

## 326a,b. INDUSTRIAL ORGANIZATION SEMINAR.

*Four semester hours each semester.* Mr. Nicholson.

## 327a,b. INTERNATIONAL TRADE SEMINAR.

*Four semester hours each semester.* Not offered, 1972-73.  
 Mr. Van Tassel.

## 328a. ECONOMIC DEVELOPMENT.

*Four semester hours each semester.* Mr. Hsu.

## 377a,b. REGIONAL SEMINAR.

*Four semester hours each semester.* Not offered, 1972-73.  
 Mr. Moody.

## 390a,b. ECONOMETRICS SEMINAR.

Semester One only in 1972-73.  
 The application of statistical techniques to the verification of economic postulates and problems. Topics considered are: the linear normal regression model, single equation econometric problems, simultaneous equation estimating techniques, spectral analysis and factor analysis. Prerequisite: consent of instructor. Staff.  
*Four semester hours each semester.*

# Education

## DEPARTMENT FACULTY

William C. Kvaraceus, Ed.D., *Professor of Education and Sociology, Department Chairman*

Helen J. Kenney, Ed.D., *Professor of Education*

Richard P. Boardman, Ed.D., *Assistant Professor of Educational Sociology*

Judith T. Guskin, Ph.D., *Assistant Professor of Education*

David Zern, Ph.D., *Assistant Professor of Education and Adjunct Assistant Professor of Psychology*

Peter E. Sloane, Ph.D., *Associate Professor of Economics and Education*

Marcia A. Savage, Ed.D., *Assistant Professor of Education*

Irving A. Schwartz, M.A., *Assistant Professor of Education and Clinical Instructor in Social Studies, Program Director, Training Complex Project*

Mitchell P. Lichtenberg, Ph.D., *Director, Training Complex Project*

William E. Topkin, Ed.D., *Assistant Professor of Education*

Norman E. Zinberg, M.D., *Affiliate Professor of Education*

Lawrence Bader, Ph.D., *Affiliate Assistant Professor of Education*

Eleanor R. Moosey, Ed.D., *Affiliate Assistant Professor of Education*

Spencer R. Potter, Ed.D., *Lecturer in Education*

Thomas Dischter, M.A., *Lecturer in Educational Anthropology*

With the cooperation of Professor Schatzberg of the Department of Language and Literature; Professor Warman and Professor Knos of the Graduate School of Geography; Professor Beck of the Department of Philosophy; Clinical Instructors in English, Michael True, Victoria Trachtenberg, and Holly Bishop; Clinical Instructor in Mathematics, Evelyn Silvia; Clinical Instructor in Elementary Education; Deborah Zern and cooperating teachers and administrators in private and public schools.

## UNDERGRADUATE PROGRAM

The department encourages all students who may be interested in preparing for careers in education to consult with some member of its staff early in their careers at the University. During the first two years, students should complete as many of the specific requirements for the degree of Bachelor of Arts as possible, and lay a broad foundation of scholarship in the subjects in which they wish to specialize. However, a limited set of experimental courses has been made available for selected freshmen and sophomores. Special permission is usually required for entree to education courses taken at the undergraduate level. Generally, the actual election of courses in education should be postponed until the junior year.

In conformity with its policy of emphasizing the importance of scholarly background, the department offers its courses as electives, and not as undergraduate majors.

However, to enable those students contemplating teaching careers the Department provides an internship in the senior year as a transition to professional study at the graduate level, and for entry into beginning teaching positions. The internship module is limited to seniors who have completed major requirements at a satisfactory level of scholarship. Most interns carry the module for a 12 to 15 credit block during either the first or second semester. Decision to elect the internship module must be made before the end of the junior year, and must be approved by the Department of Education and reviewed by academic departments for competency in subject matter areas.

## GRADUATE PROGRAM

The department offers one program leading to the degree of Master of Arts in Education and another leading to the degree of Doctor of Education.

*Master of Arts in Education:* For graduate students wishing to prepare for work within the area of early childhood care and education the department offers a fifth-year program leading to the degree of Master of Arts in Education.

*Admission Requirements:* In addition to the general admission requirements to the Graduate School, a personal interview is usually required by the Department of Education.

*Programs Available:* Two programs leading to the degree of Master of Arts in Education are available:

1. A full or part time program in early childhood care and education for students with a bachelor's degree and strong academic background. Superior students may complete this program in one year. It includes advanced work in the academic fields and internship experiences.
2. A transitional program in educational psychology and educational sociology leading to doctoral work in these fields.

### *Program Requirements:*

1. *Courses:* For further details on course requirements, consult the Department of Education.
2. *Internships:* The department provides opportunities for an extended internship experience under supervision for all graduate students.
3. *Thesis or Additional Study in Lieu of Thesis:* All candidates for the degree of Master of Arts in Education must choose one of the following plans:
  - (a) Prepare an acceptable thesis.
  - (b) Elect, in lieu of thesis, two additional semester courses.
  - (c) Elect, in lieu of thesis, a seminar in which intensive work will be required in preparing and presenting reports before fellow graduate students and a member of the staff.
4. *Final oral examination:* The passing of a final oral examination will be required of all candidates.

*Doctor of Education:* A new and specialized program for the degree of Doctor of Education has been established. Two directions for study lead to the doctoral degree in the areas of Social or Educational Analysis. These specialties differ in the scope of their concern. The social analyst studies the structure and functions of social systems and their educational implications. The educational analyst focuses his attention on the individual learner and the school as a learning environment. Both programs stress assessment and research.

There are four major components to this doctoral program: (1) *Social Science Foundations.* Depending upon the individual student's orientation, he will pursue an extended program relating psychological or sociological perspectives to issues in education. All students will be expected to acquire some expertise in both foundation fields that will be examined through a variety of learning experiences, including integrative field studies; (2) *Educational Process.* Students will acquire or otherwise demonstrate an appropriate level of competence in understanding and applying bases and criteria involved in curriculum decisions, development, and implementation; (3) *Research and Evaluation.* All students will be expected to demonstrate or otherwise acquire an appropriate level of competence in statistical procedures and research design; and (4) *Consultation and Group Dynamics.* All students will be expected to participate in specific experiences aimed at developing the interpersonal skills needed to work effectively with small groups and to develop effective supervisory and consulting techniques.



The formal course of study is periodically evaluated through individual assessments including the required preliminary exams. The design and preparation of a dissertation is the final requirement of the program offering the student the opportunity to study in depth a topic of specific concern to him.

Applicants for admission to the program will be expected to give evidence of high scholarly achievement and leadership promise in their chosen field. Other evidence of potential such as results from Graduate Record Examinations, Miller Analogies, etc. may be required. Potential candidates are encouraged to sit in on graduate classes and otherwise familiarize themselves with the graduate program before completing formal application procedures. Personal interviews with staff of the Department will then be required before applications are acted upon. In special cases, foreign students may be excused from the Examination and interview requirement.

The department admits to graduate work only those students who plan to enroll in the Ed.D. program on a full-time basis. A residence requirement demands a minimum of full-time study (not less than 24 semester hours credit beyond the master's degree). The student is required to pass his course work with distinction. The number of courses to be taken is determined through consultation with the student's individual advisor, but generally calls for four or five semesters of full-time study beyond the master's program. Language requirements in the Department are optional and relate to the student's background and future professional goals.

A special sequence of courses sponsored jointly by the Clark Training Complex Project and the Department of Education is designed to provide an opportunity for a limited number of undergraduates interested in a career in teaching to participate in a diversified four-year training sequence. A series of seminars, led by a doctoral candidate in the Clark Department of Education's Social/Educational Analyst Program, and assisted by a Training Complex cadre teacher and a post-internship senior, will be held at Clark to discuss and define issues, to process and analyze data, and to propose solutions to sociologically defined problems, curricular problems, and psychological and guidance problems.

## COURSES

### 101a.b. FRESHMAN PRACTICUM: SOCIOLOGICALLY DEFINED PROBLEMS.

Open to 16 freshmen with permission of the Department of Education.

*Four semester hours.*

Mr. Schwartz.

### 102a.b. SOPHOMORE PRACTICUM: CURRICULAR PROBLEMS.

Open to 16 sophomores with permission of the Department of Education.

*Four semester hours.*

Mr. Schwartz.

### 103a.b. JUNIOR PRACTICUM: PSYCHOLOGICAL AND GUIDANCE PROBLEMS.

Open to 16 juniors with permission of the Department of Education.

*Four semester hours.*

Mr. Schwartz.

### 104a. INTRODUCTION: GEOGRAPHY AND ITS TEACHING.

Refer to description under Geography 104.

Mr. Knos and others.

### 150a. SEMINAR IN METHODS AND MATERIALS IN MATHEMATICS TEACHING AT THE SECONDARY LEVEL.

*Three semester hours.*

Miss Silvia.

**200a.b. GEOGRAPHY IN EDUCATION.**

Refer to description under Geography 100a and b.

*Three semester hours each semester.*

Mr. Warman.

**201a.b. EDUCATIONAL PSYCHOLOGY.**

Principles of human development and learning with emphasis on educational implications. Recommended for those planning to take the Internship Module.

*Three semester hours. Repeated second semester.*

Mrs. Guskin.

**204a.b. ECONOMIC EDUCATION: ELEMENTARY SCHOOL.**

Designed to analyze and evaluate the content, structure and tools of social science curricula at the elementary and secondary levels. Emphasis will be upon innovative, interdisciplinary programs incorporating economic concepts. The objective will be to design experimental projects for testing under classroom conditions.

*Three semester hours each semester.*

Mr. Sloane.

**217a.b. INTERNSHIP TEACHING.**

An intensive period of observation and teaching in the field or fields in which the student plans to teach. Individual supervision is given by the department and by teachers in cooperating schools. Admission on consent of the Department. Limited to graduate students in M.A. in Ed. Program.

*Six semester hours.*

Miss Kenney, Staff and Co-operating Teachers.

**222a. ATTENTION AND ATTACHMENT: ISSUES IN INFANT CARE.**

The attention processes and the attachment behaviors of the infant will be emphasized in this course on the first years of life. Both theoretical and research literature will be analyzed. Direct observations and films will also be utilized to allow the student opportunities for more concrete experiences.

*Three semester hours.*

Mr. Zern.

**223b. CULTURAL VARIATIONS IN CHILD REARING.**

Analysis of various sub-cultural and cross-cultural patterns of child rearing. The materials for this consideration will be both theoretical and descriptive, and will be taken from appropriate novels and plays, as well as more standard social science resources. Class members will participate in the choice of the various cultural groups to be considered in the course.

*Three semester hours.*

Mr. Zern.

**224a. TRAINING COMPLEX WORKSHOP IN CURRICULUM DEVELOPMENT.**

This workshop is designed to develop a broader conception of curriculum than the one generally held at present. Eight public school teachers and eight Clark undergraduate, prospective teachers will explore the idea of curriculum as transaction, with emphasis on the substantive, psychological, interpersonal and environmental implications of curriculum for teaching/learning. The main focus of the workshop will be an examination of the problem of autobiography in its essential and existential dimensions, and its translation by the participants into curricular activity.

*Four semester hours.*

Mr. Schwartz.

**225a. TRAINING COMPLEX SEMINAR.**

A seminar which brings together Clark student-teachers and teachers from cooperating schools in the Worcester area to discuss problems, describe strategies, and share techniques related to their

student-teacher/cooperating teacher experience. The group will continue to explore and evaluate the translation and application of autobiographical approaches to teaching and learning.

*Four semester hours.*

Mr. Schwartz.

### 233a.b. SOCIAL STUDIES: CURRICULUM, METHODS, AND MATERIALS.

The first semester considers a variety of methods and materials for use in social studies programs. The second semester focuses on current social studies curriculum issues and is offered only to those students who are enrolled in an inter-teaching program.

*Three semester hours each semester.*

Mr. Lichtenberg, Mr. Sloane.

### 234. FIELD PROJECTS.

Provides individualized and extended experiences in a wide variety of agencies and institutions involving the education and comprehensive care of children and youth. Supervision is provided by the University and field agency personnel; combines related seminars and conferences as a basis for critical analysis of the experiences within the context of applied theory and practice.

More than one project may be undertaken at the same time and the course may be repeated more than once around a different project.

*Variable credit.*

Miss Kenney, Mr. Kvaraceus & Staff.

### 238a. ADVANCED FIELD STUDY IN SOCIAL STUDIES: CURRICULUM, METHODS, AND MATERIALS.

Examines the use of community resources in the social studies curriculum. Materials development, evaluation, and utilization of the community as a social studies laboratory form the major direction of the course. Classes will meet for approximately fifteen sessions throughout the academic year. Enrollment is limited and by permission of the instructor.

*Three semester hours.*

Mr. Lichtenberg.

### 242a.b. EMOTIONAL PROBLEMS AND SCHOOL LEARNING.

Considers the psychodynamics of emotional disturbance in children and adolescents, diagnostic and remediation techniques, and various educational approaches. Involves practicum experiences with disturbed children.

*Three semester hours each semester.*

Miss Kenney.

### 251a. AMERICAN YOUTH IN SCHOOL AND SOCIETY.

Considers the role, development, and education of youth with special consideration of youth's involvement in the changing school system and other youth-serving agencies and institutions.

*Three semester hours.*

Mr. Kvaraceus.

### 260a.b. LINGUISTICS FOR LANGUAGE TEACHERS.

This course is designed (1) to explore the various fields and disciplines in linguistic science from the point of view of their relevance to foreign language teaching; and (2) to ensure basic competence in those areas most needed by the teacher for developing and improving his own teaching methods. While the course will concentrate on the broad background applicable to the teaching of any language, each student will also pursue the special applications for his particular language. Intended for prospective (or practicing) teachers who have advanced competence in the foreign language. Instructor's permission is required.

*Four semester hours.*

Mr. Reid.

**272a.b. SEMINARS IN STUDENT TEACHING.***Two semester hours.*

Miss Kenney &amp; Staff.

**273b. SEMINAR IN METHODS AND CURRICULUM IN MATHEMATICS TEACHING AT THE SECONDARY LEVEL.***Three semester hours.*

Miss Silvia.

**280b. JUVENILE DELINQUENCY AND THE SCHOOL.**

Considers the role of the school as a central agency in the prevention and control of norm-violating behavior.

*Three semester hours.*

Mr. Kvaraceus.

**287. INTERNSHIP MODULE IN EDUCATION.**

The internship provides an intensive work-study experience in elementary schools and other educational agencies in the Worcester area. It involves theoretical course work; a full-time supervised work experience in schools or in some other educational, welfare, and recreation agency; and related workshops, seminars, and conferences.

At the elementary level the module provides credit in the following areas: student teaching (6 credits) with the remainder of the 12 to 15 credits distributed according to individual student needs among units covering curriculum development, methods and materials of instruction, and tests and measurement.

The internship offers a wide variety of specialized learning opportunities to meet the different interests and backgrounds of the students. These include experiences in educational testing and diagnosis, educational research, curriculum construction and experimentation and school administration as well as in classroom teaching and individual tutoring.

The internship at the secondary school level is spread over two semesters and may be taken via the Training Complex as tied into the Triple T program or through the interdepartment design as arranged with the Departments of Mathematics, English, Foreign Languages and Literatures, and Science.

Limited to seniors who will have completed major requirements and whose grade point average reflects high level of scholarship. Students contemplating internships must make application during their junior year.

*Twelve to fifteen hours.*

Miss Kenney, Staff and Cooperating Teachers.

**289b. FIELD OBSERVATION: COGNITIVE AND SOCIAL-INTERPERSONAL BEHAVIOR IN THE CLASSROOM SETTING.**

Illustration of various cognitive and social-interpersonal models of human behavior in the classroom setting. Special consideration will be given to the work of Freud, Piaget, Skinner, Wertheimer, Lewin, and F. Kluckhohn. Students will carry out field observations, and formulate and execute their own individual projects.

*Four semester hours.*

Mr. Zern.

**290b. PHILOSOPHY OF EDUCATION.**

The aims, processes and materials of education with special reference to the influence of philosophical ideas on educational problems.

*Three semester hours.*

Mr. Beck.



293a. WORKSHOP IN SECONDARY ENGLISH CURRICULUM.

Refer to description under English 293a.

*Three semester hours.*

Mr. True and Mrs. Trachtenberg.

294b. MATERIALS AND METHODS IN TEACHING SECONDARY ENGLISH.

Refer to description under English 294b.

*Three semester hours.*

Mr. True and Mrs. Trachtenberg.

298. PROGRAMMING AND CLASSROOM MANAGEMENT.

Detailed consideration of day-to-day functioning in the classroom. The rationale behind the various specific techniques will be considered in detail.

*Three semester hours.*

To be announced.

305a.b. GROUP PROCESS IN EDUCATION.

A two-semester course designed to provide an opportunity to learn more about interpersonal behavior and group dynamics. Using data generated from within the class, we will pay attention to issues that are central to group dynamics, e.g., how norms are established, in what manner decisions are made, and the roles assumed by individuals. Consideration will be given to the application of group dynamics to the field of education. Readings are drawn from the field of group work and self-analytic groups. Prerequisite: Permission of instructor — Limited to 12 students.

*Six semester hours.*

Mr. Bader.

306a. SUPERVISION OF FIELD PROJECTS.

A one-semester course which offers clinical supervision of work experiences for doctoral students in their field placements. Readings will include both theory and research on change — for individuals, groups, and institutions.

*Three semester hours.*

Mr. Bader.

311a. PRINCIPLES AND PRACTICES OF GUIDANCE.

Consideration will be given to the rationale for pupil personnel services in the public schools and to the organization and means by which the services may be organized and offered to the student body.

*Three semester hours.*

Mr. Potter.

314a. TESTS AND EVALUATION: THEORY AND TECHNIQUES OF MEASUREMENT AND APPRAISAL.

The methods and problems involved in the evaluation of abilities, interests, and achievement of children and youth, both by standardized instruments and by special purpose measures.

*Three semester hours.*

Miss Kenney.

317b. INDIVIDUAL ASSESSMENT OF MENTAL ABILITIES.

Theory and intensive experience in administering and interpreting individual tests of intelligence with major emphasis on Stanford-Binet Revision and Wechsler-Bellevue Intelligence Scales. Emphasizes educational approach to interpretation.

*Three semester hours.*

Miss Moosey.

323a.b. THE ORGANIZATION AND MANAGEMENT OF PROGRAMS FOR YOUNG CHILDREN.

Includes various modularized components covering an analysis of the following areas of relevance:

- (1) legislation at the federal, state, and local level
- (2) the utilization of the agency network
- (3) the organizational structure and dynamics of the child care agency
- (4) staffing and in-service training
- (5) budgeting and cost analysis.

*Three semester hours per semester indivisible.*

To be announced.

To be offered in 1973-74.

### 320b. SEMINAR IN THE SOCIOLOGY OF EDUCATION.

An in-depth consideration of a major issue in education informed by discussion and consideration of relevant literature.

*Three semester hours.*

Mr. Boardman.

### 327b. SCHOOL CONSULTATION: ISSUES AND PROBLEMS.

A one-semester course which will provide an opportunity to focus on the models of, problems in, and strategies for consultative intervention. Readings will be drawn from the area of consultation in school systems.

*Three semester hours.*

Mr. Bader.

### 331b. RESEARCH IN EDUCATIONAL SOCIOLOGY.

A consideration of the assumptions and techniques of applied social research in education. A review of traditional and current social scientific approaches will be included as well as an opportunity for development of independent research.

*Three semester hours.*

Mr. Boardman.

### 333a. EDUCATIONAL INSTITUTIONS AND SOCIAL CHANGE.

Provides an opportunity to develop and report on an independent inquiry into an aspect of the educational system and its relation to various models of social structure and change.

*Three semester hours.*

Mr. Boardman.

### 334b. EDUCATION AS A FORCE IN URBAN SOCIETY.

An opportunity to define and inform a group project evaluating aspects of the effectiveness of the modern educational system. Access to area practitioners and facilities will be provided.

*Three semester hours.*

Mr. Boardman.

### 335a.b. HUMAN LEARNING.

Analysis of basic psychological approaches (Freud, Piaget, Skinner, Wertheimer) to the issues involved in human learning processes. Applications of these perspectives to particular learning situations will be considered both during and after the more explicitly theoretical sections.

*To be given 1973-74.*

Mr. Zern.

### 336a. LANGUAGE AND COGNITIVE DEVELOPMENT, PART I.

Major emphasis is placed on language acquisition and its relationship to cognitive development.

*Three semester hours.*

Mrs. Guskin.

336a.b. LANGUAGE AND COGNITIVE DEVELOPMENT, PART II.

Major emphasis is placed on bilingual education. Prerequisite: Part I (or permission).

*Three semester hours.*

Mrs. Guskin.

339b. EDUCATION PROCESS AND CURRICULUM INNOVATION.

Reviews traditional and current developments in educational programs against a theoretical background of the learning processes.

*3 credits.*

Kenney, Guskin and Staff.

341a. SOCIAL-PSYCHOLOGICAL ISSUES IN EDUCATION.

A consideration of selected issues in American education from the point of view of psychological and sociological perspectives. Planned particularly for entering doctoral candidates — others with permission.

*Three semester hours.*

Mr. Zern and Staff.

342a. ELEMENTS OF CURRICULUM AND ORGANIZATIONAL ANALYSIS.

Considers the interaction of method and content within the organizational structure of the school as a changing social institution.

*3 credits.*

Mr. Boardman.

343a. ANALYSIS OF THE RESEARCH PROCESS.

A critical examination of the nature of the research enterprise conducted primarily through an analysis of the strengths and weaknesses of existing research in the social sciences focussed on educational issues. Planned for doctoral students — others with permission.

*Three semester hours.*

Mr. Zern.

344. RESEARCH DESIGN.

Development of techniques necessary for the construction of adequate hypothesis-testing procedures. Students will develop their own dissertation-level designs, as well as examining other models.

*Three semester hours.*

Mr. Zern.

349a.b. ANTHROPOLOGICAL APPROACHES IN EDUCATION.

Views the schools and learning as containing their own society and culture in dynamic relationship to the surrounding culture and society.

*Three semester hours.*

Mr. Dichter.

354a.b. ADVANCED SEMINAR IN SOCIAL PSYCHOLOGY AND EDUCATION.

Centers on problems faced by educational and social analysts working in school and community.

*Three semester hours.*

Mr. Zinberg.

379a.b. ADVANCED GRADUATE INTERNSHIP IN EDUCATION.

*Three semester hours.*

Staff.

380b. DEPARTMENTAL SEMINAR ON CONTEMPORARY EDUCATIONAL PROBLEMS AND ISSUES.

For master's degree candidates who are not writing a thesis. Requires a major paper.

*Three semester hours.*

Mr. Kvaraceus and Staff.

## GRADUATE READINGS AND THESIS COURSES

## 38. DIRECTED READINGS IN EDUCATIONAL PSYCHOLOGY.

381. THESIS.

Staff.

## 37. DIRECTED READINGS IN EDUCATIONAL SOCIOLOGY.

371. THESIS

Staff.

# English

## DEPARTMENT FACULTY

William H. Carter, Jr., Ph.D., *Professor of English, Department Chairman*Karl O. E. Anderson, Ph.D., *Professor of English*James F. Beard, Jr., Ph.D., *Professor of English*Charles S. Blinderman, Ph.D., *Professor of English*James Macris, Ph.D., *Professor of English and Linguistics*Stanley Sultan, Ph.D., *Professor of English\*\**Jessie C. Cunningham, Ph.D., *Associate Professor of English\**Serena S. Hilsinger, Ph.D., *Associate Professor of English*Neil R. Schroeder, Ph.D., *Associate Professor of English and Theatre Art*James P. Elliott, Ph.D., *Assistant Professor of English*'Sola Soile, Ph.D., *Assistant Professor of English*Jack J. Jorgens, Ph.D., *Visiting Professor of English, First Semester*Vance E. Schachterle, Ph.D., *Visiting Professor of English, First Semester*Ken Smith, B.A., *Poet-in-Residence, Second Semester*

\*On leave, First Semester

\*\*On leave, Second Semester

## UNDERGRADUATE PROGRAM

An undergraduate major in English and American Literature is expected to acquire a liberal education with a broad background in the arts and sciences. To do so, he should become familiar with several fields in the humanities, the social sciences, mathematics, and the sciences; and insofar as is possible, he should attempt to achieve depth in at least one area outside his major field. On becoming a major, the student should consult with the Chairman about choosing an adviser and should thereafter discuss his program with his adviser at each registration period.

## ENGLISH

The English major must take at least thirty-two hours in literature courses other than English 16, 17, 18, and 19. In addition, he must take a minimum of sixteen hours of related courses in other fields, as specified under *Related Courses* below.



*Literature Courses.*

- I. The minimum thirty-two hours of literature courses required of the major must include:
  - A. English 10a or b (a prerequisite for all other literature courses offered by the Department, except for students with a score of three or better on Advanced Placement or students who have satisfactorily passed the Placement Test given by the Clark English Department). English 10 is to be taken preferably in the freshman year and no later than the sophomore year.
  - B. Two of the following, normally taken before the senior year: English 13 (a or b), English 14 (a and b), English 15 (a and b), English 111 (a and b). (Students will not be permitted to combine single semesters of English 14, 15, 111 in meeting this requirement.)
  - C. A minimum of twelve hours in courses or seminars at the 200-level.
- II. To make sure that students develop some historical perspective and an awareness of the range and variety of English and American literature, all English majors must include in their programs at least:
  - A. Three semester-courses dealing with literature written before 1700 (for example, English 15a, 200b, 203b, 206b, 212a, 212b, 215b, 220a, 222b).
  - B. Three semester-courses dealing with literature written from 1700 to 1900 (for example, English 13, 14a, 14b, 15b, 111a, 111b, 226a, 226b, 236a, 236b, 238b, 239a, 242a, 242b, 244a, 245b, 247b, 248b, 249a, 250b).

Students should note that certain courses may be counted towards *two* of these requirements (for example, if one takes English 14a and b to satisfy half of requirement I.B., he may also use these two one-semester courses to meet two thirds of requirement II.B.).

*Courses in Foreign Literature.* A student may count any of the courses listed under "Comparative Literature" towards the English major.

*Related Courses.* The minimum sixteen hours of related courses required of the English major must include eight hours of History and eight hours of Philosophy.

*Courses Recommended Outside the Major and Related Fields.* Like all undergraduates, the English major must elect at least thirty-six hours of courses *outside* his major and its related fields. These courses must be selected from the offerings of the following Departments: Biology, Chemistry, Economics, Education, Fine Arts, Geography, Geology, German, Government and International Relations, Linguistics, Mathematics, Music, Physics, Psychology, Romance Languages, Russian, Sociology, Theatre Art.

Those students who intend to go on to graduate school should be aware that a reading knowledge of French, German, and Latin is frequently required of doctoral candidates.

*Honors Program.* Majors are encouraged to apply in the spring of their sophomore year to participate in the Honors Program in English. Further information is available from the Department.

*Cooperative Programs.* The range of English offerings open to Clark students has been extended by the establishment of a cooperative arrangement with the English Departments at Assumption College and the College of the Holy Cross. With the permission of the Department, majors and graduate students may take a few carefully selected courses in literature and linguistics at these institutions. Another Consortium program that may be of interest is listed under "Theatre Art."

## GRADUATE PROGRAM

The University offers a program leading to the Master of Arts degree in English. A limited number of scholarships providing tuition remission are available for superior students. The Department also offers

several teaching assistantships, involving half-time teaching and half-time study, with stipends ranging up to \$3000, plus the remission of tuition.

For the Master of Arts, the student must satisfactorily complete at least 30 semester hours of work, including English 300a (Introduction to Graduate Studies), English 280a (English Language), and at least one seminar. He must also write an acceptable master's thesis, English 350 (which, with an associated reading course, English 349, may count up to 6 of the required 30 semester hours); he must pass a written Foreign Language Examination (in Greek, Latin, French, German, Italian, Russian, Spanish, or another foreign language approved by the Department); and he must pass a final oral examination.

## COURSES\*

\*Please note that we have renumbered our 200-level courses; the old numbers appear in parentheses after the course titles.

### 10a,b. INTRODUCTION TO LITERATURE.

This course deals with the problems common to all the literary genres — such as the handling of diction, imagery, point of view, tone, and structure — but each section has its own set of readings focused on a particular concept or theme. Students will be permitted to make their own choices of section as far as possible. Offered both semesters.

*Three semester hours.*

Staff.

### 13a,b. INTRODUCTION TO POETRY.

A course designed to combine consideration of the nature and range of English poetry with extensive experience in the study and discussion of individual poems. Offered both semesters.

*Four semester hours.*

Mr. Carter and Mrs. Hilsinger.

## 14. ENGLISH NOVEL.

A study of the English novel from its beginning to the end of the nineteenth century. The first semester includes Defoe, Richardson, Fielding, Smollett, Sterne, Jane Austen, and three or four minor novelists. The second semester considers Scott, Thackeray, Dickens, George Eliot, James, Hardy, Conrad, and two or three minor novelists. Some emphasis is placed on the development of the novel as a literary form.

*Four semester hours each semester.*

First semester, Mr. Schachterle; Second semester, Mrs. Cunningham.

## 15. ENGLISH DRAMA.

A course in the major periods of English drama before the twentieth century. The first semester covers medieval religious drama and the drama of Tudor and Stuart England. The second semester covers British drama from 1660 to the earlier twentieth century.

*Four semester hours each semester.*

First semester, Mr. Jorgens; Second semester, to be announced.

### 16a,b. CREATIVE WRITING.

A course designed to cultivate and guide student work particularly in the short story, the lyric poem, and the informal essay. Class meetings deal largely with important aspects of the art of fiction; published literary works and student manuscripts are discussed. Not open to freshmen. Prerequisite: a one-semester course in literature.

*Three semester hours.*

First semester, Mr. Sultan; Second semester, Mr. Milner.

17b. CREATIVE WRITING: SECOND COURSE.

Open to students who have taken English 16 and to other students interested in writing verse.

Prerequisite: the same as for English 16.

*Three semester hours.*

Mr. Smith.

F18a,b. EXPOSITORY WRITING.

This course is designed to help students improve their expository writing through the study and application of rhetorical methods. Diction, sentence structure, paragraph integrity, theme organization, logic, semantics, persuasion, the relationship of idea to expression and of expression to audience are among the matters analyzed. Offered both semesters.

*Three semester hours.*

Staff.

19b. INTERMEDIATE COMPOSITION.

Not offered, 1972-73.

This course is designed to help those who have already acquired competence in expository writing to improve their style and effectiveness through practical experience. Special emphasis will be placed on stylistics, techniques of persuasion, and methods of organization through the study of works of established essayists and the close analysis of student papers. Enrollment limited to fifteen students. Offered at the discretion of the Department. Prerequisite: English 18 and consent of the instructor.

*Three semester hours.*

Mr. Blinderman.

88. DIRECTED READINGS.

*Variable credit.*

Staff.

90. SPECIAL PROJECTS.

*Variable credit.*

Staff.

111. AMERICAN LITERATURE.

Through study of representative masterworks, the course traces the main currents of American literature from Puritan times to the present. Authors read during the first semester include Sewall, Edwards, Franklin, Cooper, Poe, Hawthorne, Thoreau, Emerson, and Melville; during the second semester, Whitman, Twain, Howells, Dickinson, Adams, Crane, James, Frost, Eliot, Faulkner and Hemingway.

*Four semester hours each semester.*

First semester, Mr. Elliott; Second semester, Mr. Beard.

120b. LITERATURE AND LIBERATION.

This course will study the way literature reflects and determines the position of women in societies from ancient Greece to modern suburbia. Offered at the discretion of the Department.

*Four semester hours.*

Mr. Blinderman.

129. MODERN DRAMA.

A survey, with special emphasis on several major figures, of drama from Ibsen to the present. The first semester traces the development of naturalism, the emergence of modern realistic drama and early reactions to realism. The second semester covers the period from World War II to the present and examines several of the major post-war movements and some of the non-dramatic forms which they have produced.

*Four semester hours each semester.*

Mr. Schroeder.

**139b. INTRODUCTION TO AFRICAN LITERATURE.**

A survey of modern African literature with emphasis on the stylistic and thematic developments in the works of Tutuola, Abrahams, Achebe, Ngugi, Laye, Soyinka, Clarke, and others. Offered at the discretion of the Department.

*Four semester hours.*

Mr. Soile.

**140. AFRO-AMERICAN LITERATURE.**

A study of selected Afro-American writers in prose and poetry. This course proposes to introduce the student to the vast body of writing by American Black authors, focusing on the evolution of their expression and its artistic merit.

*Four semester hours.*

Mr. Soile.

**143b. MODERN BRITISH FICTION.**

The course deals primarily with the work of four twentieth-century British writers of fiction: Joyce, Lawrence, Woolf and Durrell.

*Four semester hours.*

Mrs. Hilsinger.

**144a. MODERN AMERICAN FICTION.**

A critical introduction to the best American fiction from about 1900 to 1960, with emphasis on its aesthetic values, sociological insights, and philosophical implications. Authors read include Dreiser, James, Anderson, Fitzgerald, Hemingway, Capote, Faulkner, Ellison and Mailer.

*Four semester hours.*

Mr. Beard.

**146b. LITERATURE OF THE SIXTIES.**

The course will be a survey of contemporary British and American fiction and poetry. Writers to be considered might include Burgess, Hawkes, Golding, Barth, Mailer, Malamud, Bellow, Heller, Vonnegut and representative modern British and American poets.

*Four semester hours.*

Mr. Elliott.

**150a. LITERATURE OF WESTERN CIVILIZATION.**

Not offered, 1972-73.

A study of literature basic to the cultural development of western civilization; selections range in subject from mythology to political science, in type from the epic poem to the essay, and in time from Greek antiquity to the Renaissance. Offered at the discretion of the Department.

*Four semester hours.*

Mr. Blinderman.

**155b. SEMINAR: THE MYTHOPOETIC MODE.**

This seminar explores the vision and epistemology of mythopoetic literature. Works read and discussed include Shakespeare's *Henriad*, Milton's *Paradise Lost*, Brontë's *Wuthering Heights*, Melville's *Moby Dick*, and Eliot's *Four Quartets*. Candidates for honors in English should elect this seminar in their junior year. Prerequisite: consent of the instructor.

*Four semester hours.*

Mrs. Hilsinger.

**156. HONORS IN ENGLISH: SENIOR YEAR.**

*Four semester hours.*

Staff.

**200b. SEMINAR: OLD NORSE SAGAS (200b).**

Not offered, 1972-73.

A study of the major works written during the great flowering of literature in medieval Iceland, with



particular emphasis on the Old Norse sagas. All works will be read in translation, but interested students will be given an opportunity to learn Old Norse. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Anderson

### 203b. MEDIEVAL LITERATURE (202b).

A study of the literature of Western Europe before 1500. The works read include epics such as *Beowulf*, *The Song of Roland*, *The Nibelungenlied*, and the *Njal's Saga*; historical writings and folk tales important in the development of the Arthur story; romances such as *Perceval*, *Tristan and Isolde*, and *Gawain and the Green Knight*; Dante's *Divine Comedy*; *Inferno*; selections from Chaucer's *Canterbury Tales*.

*Four semester hours.*

Mr. Anderson.

### 206b. SEMINAR: CHAUCER (201b).

An introduction to Middle English grammar, pronunciation, and scansion, and a study of *Troilus and Criseide* and the best of the *Canterbury Tales*, followed by a more rapid reading of at least three of Chaucer's earlier works, such as *The Book of the Duchess*, *The House of Fame*, *The Parliament of Fowls*, and *The Legend of Good Women*. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Anderson.

### 212. SHAKESPEARE (213).

Approximately twenty plays, with supplementary critical essays, are read through the year as a basis for a study of Shakespeare's development as a dramatist and his changing attitude toward life. The second semester is devoted mainly to a careful analysis of *Hamlet*, *Othello*, *Lear*, *Macbeth* and *Antony and Cleopatra*.

*Four semester hours each semester.*

Mr. Anderson.

### 215b. SEMINAR: SPECIAL STUDIES IN RENAISSANCE DRAMA (206b). Not offered, 1972-73.

A seminar devoted to the intensive study of a small group of dramatists or a special dramatic problem of the Renaissance. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Schroeder.

### 220a. SEMINAR: SEVENTEENTH CENTURY (204a).

Not offered, 1972-73.

A study of selected Metaphysical and Cavalier poets, masterpieces of seventeenth century prose, and the rise of English neo-classicism. Offered in alternate years. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Carter.

### 222b. SEMINAR: MILTON (204b).

Not offered, 1972-73.

An intensive reading of Milton's poems and selected prose. Offered in alternate years. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Carter.

### 226. SEMINARS: EIGHTEENTH CENTURY (205).

During the first semester, prose works such as Defoe's *Moll Flanders* and Swift's *Gulliver's Travels*, plays such as Gay's *Beggar's Opera* and Lillo's *London Merchant*, and the major poems of Pope and Swift are considered. During the second semester, prose works by Boswell and Johnson; novels by

Richardson, Fielding, Smollet, Sterne; plays by Fielding, Goldsmith, Sheridan; and poetry by Thomson, Collins, Gray, Burns and Blake are studied. Offered in alternate years. An eighteenth century seminar, combining highlights from both semesters, will be offered during the first semester only in 1972-73. Prerequisite: consent of the instructor.

*Four semester hours each semester.*

Mr. Carter.

236. LITERATURE OF THE ROMANTIC PERIOD (217).

Not offered, 1972-73.

To define Romanticism, the course will focus primarily on selected writings of English Romantic poets, but it will also study American and Continental works both of the Romantic period and of modern times. A collaborative effort will be made by instructor and students to correlate Romantic attitudes of the past, as expressed by such figures as Keats and Byron, with Romantic attitudes of the psychedelic present. Offered in alternate years.

*Four semester hours each semester.*

Mr. Blinderman.

238b. SEMINAR: WILLIAM BLAKE (218b).

An analysis of the poems and of a selection of the Prophetic Books of Blake, including some consideration of Blake as graphic artist. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Carter.

239a. SEMINAR: AMERICAN LITERARY RENAISSANCE (212a).

This course will explore characteristic writings of Emerson, Thoreau, Hawthorne, Melville, and Whitman; consider their personal and literary interrelations; and seek to evaluate their artistic and cultural influences in the larger context of American society. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Beard.

242. VICTORIAN LITERATURE (210).

A study of Victorian values and major intellectual movements as expressed in literature. The first semester concentrates on the Idea of Duty (transcendental, utilitarian, Catholic, Darwinian, and Dickensian); the second on the Idea of Decadence (from the Pre-Raphaelites to Beardsley). Offered in alternate years.

*Four semester hours each semester.*

Mr. Blinderman.

244a. SEMINAR: ROMANTIC AND VICTORIAN GOTHIC (216a).

The seminar will call forth the Gothic spirit from its incarnations in architecture, painting, and literature — graveyard poetry, Gothic novels, *Frankenstein*. Films and a field trip.

*Four semester hours.*

Mr. Blinderman.

245b. SEMINAR: DARWINISM (214a).

This seminar, of an interdisciplinary nature, is devoted to the study of original and research materials elucidating the scientific, philosophical, religious and social dimensions of Darwinism. The course examines chiefly the survival of the fittest Darwinian ideas in English and American literature. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Blinderman.

247b. SEMINAR: DICKENS (219b).

Not offered, 1971-72.

This seminar will consider Dickens as a humorist, an artist, and a social critic in the light of his time and its relevance to ours. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mrs. Cunningham.

248b. SEMINAR: THE BRONTËS AND HARDY (230a).

A study of selected poetry and fiction of Charlotte, Emily and Anne Brontë and of Thomas Hardy: their dramatic affinities, their cosmic vision, their literary techniques. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mrs. Cunningham.

249a. SEMINAR: TWAIN, HOWELLS AND JAMES (211a).

The course will explore the artistic assumptions and impulses underlying American Realism through selected novels and criticism of America's three greatest realistic novelists. Some attention will also be given to DeForrest, Jewett, Frederic and some writers of tall tales. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Elliott.

250b. SEMINAR: IBSEN (227b).

Not offered, 1972-73.

An intensive study of most of the plays and selected letters and speeches of Ibsen and of criticism of his life and work. Independent study and research is emphasized. Offered at the discretion of the Department. Prerequisite: consent of instructor.

*Four semester hours.*

Mr. Schroeder.

253b. SEMINAR: MODERN AMERICAN DRAMA.

An examination of significant movements, figures, and plays in the development of twentieth-century American drama. Dramatists studied include O'Neill, Behrman, Odets, Anderson, Miller, Williams, and Albee. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Beard.

254b. SEMINAR: NATURALISM IN AMERICAN FICTION (226b).

A study of naturalism in representative American fiction and criticism, the course will consider selected works of Garland, Crane, London, Norris, Dreiser, Farrell and Steinbeck. Offered at the discretion of the Department. Prerequisite: permission of the instructor.

*Four semester hours.*

Mr. Elliott.

257b. SEMINAR: THE IRISH LITERARY REVIVAL (231b).

Not offered, 1972-73.

A course in the inception, development and effect of the literary movement during the end of the last century and first decades of this one that created an Irish literature in English. Writers studied include Yeats, Joyce, Synge and O'Casey. The cultural, historical and political backgrounds of Anglo-Irish literature are also studied. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Sultan.

258b. SEMINAR: CONRAD, LAWRENCE AND JOYCE (232b).

Not offered, 1972-73.

This course deals with the development and accomplishment in the genres of the short story and the

novel of three major writers of fiction of the twentieth century. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Sultan.

**259a. MODERNIST POETRY (220a).**

Not offered, 1972-73.

A survey, with special attention to the genesis and development of modernism and to tendencies during the last few years toward a dominant new movement in English poetry. The works of almost fifty poets, ranging in time from Emily Dickinson to Robert Creeley, are considered. Offered in alternate years.

*Four semester hours.*

Mr. Sultan.

**262a. SEMINAR: FIVE TWENTIETH-CENTURY POETS (222a).**

Not offered, 1972-73.

A seminar in the lyric poetry of Yeats, Eliot, Auden, Thomas, and a poet selected by the class, for students who have taken English 259 (Modernist Poetry) or the equivalent. Offered in alternate years. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Sultan.

**263b. CONTEMPORARY POETRY.**

A study of contemporary American and British poetry, its development from Eliot, Pound and Yeats to the present, with particular emphasis on the poetry published in the 50's and 60's and its relation to modernism and to the culture as a whole. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Smith.

**265a. SEMINAR: BLOOMSBURY GROUP (235a).**

This seminar will consider the aesthetic and social theories expressed in the novels of Virginia Woolf and E. M. Forster and in the essays of these and other members of the Bloomsbury Circle. Prerequisite: consent of the instructor.

*Four semester hours.*

Mrs. Hilsinger.

**267a. SEMINAR: TWENTIETH-CENTURY AMERICAN LITERATURE (225b).**

Not offered, 1972-73.

The course will include readings and discussions of a significant group of twentieth-century American writers — O'Neill, Eliot, Robinson, Frost, Hemingway, Faulkner, and Stevens — as artists and as representatives of tendencies and influences in American civilization. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Beard.

**272a. SEMINAR: THE BLACK WRITER IN THE MODERN WORLD:  
PRIVATE FEELING AND PUBLIC COMMITMENT.**

This course will attempt to analyze the extent to which Black writers in the U.S., in Africa, and in the West Indies have had to accommodate within their own individual visionary world the overwhelming political and social realities of their respective societies. From this analysis, it is hoped, will emerge an evaluation of the artistic success of the following writers and works in spite (or because) of this accommodation: Langston Hughes, *The Best of Simple*; James Baldwin, *Go Tell It on the Mountain*; Richard Wright, *Black Boy*; Dennis Brutus, *Letters to Martha from a South African Prison*; Gwendolyn Brooks, *A Street in Bronzeville*; Ralph Ellison, *Invisible Man*; Wole Soyinka, *A Dance of the Forests*



and *Kongi's Harvest*; John Williams, *The Man Who Cried I Am*; George Lamming, *In the Castle of My Skin*; William Demby, *The Catacombs*; Eldridge Cleaver, *Soul on Ice*. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Soile.

277b. SEMINAR: MODERN CONTINENTAL FICTION (245b).

Not offered, 1972-73.

Masterpieces by modern European novelists (Flaubert, Turgenev, Tolstoy, Dostoyevsky, Gide, Proust, Mann, Kafka and Camus) are studied in translation, with special attention to their formal philosophical, moral, social, political, and psychological values. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Beard.

280. HISTORY OF THE ENGLISH LANGUAGE (250).

The first semester deals with the development of the phonology and lexicon of English, viewed as a dynamic series of systems. The course also describes the homeland, language, and culture of the Proto-Indo-Europeans as background for a treatment of the structural relationships between English and other languages of the Indo-European family. The second semester concentrates on the development of the grammar of English, also treated dynamically and systemically. The course includes an analysis of the establishment of Standard British English, the doctrine of correctness, and the growth of Modern American English in its sociocultural setting. Prerequisite: consent of the instructor.

*Four semester hours each semester.*

Mr. Macris.

282b. SEMINAR: OLD ENGLISH (255b).

Not offered, 1972-73.

An introduction to Old English language and literature. The works read include King Alfred's preface to Pope Gregory's *Pastoral Care* and selections from the West Saxon Gospels, from the Old English translation of the Heptateuch, from Aelfric's *Colloquy*, from the Anglo-Saxon Chronicle, and from the Old English translation of Bede's *Historia Ecclesiastica Gentis Anglorum*. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Macris.

284b. SEMINAR: MODERN AMERICAN ENGLISH (260b).

This seminar analyzes the grammatical structure of Modern American English. It concentrates on an evaluational system for handling spoken and written English and the application of this system to problems of current English usage. The relevance of linguistic theory and methodology to the teaching of English receives special attention. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Macris.

286b. SEMINAR: LINGUISTIC APPROACHES TO LITERATURE (261b). Not offered, 1972-73.

A study of what modern linguistics has to offer in the analysis and criticism of literature, with special attention to the contributions of the generative-transformational, tagmemic, and parametric approaches. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Macris.

291a. SEMINAR: THE CONCEPT OF TRAGEDY (207b).

Through the study of approximately twenty plays, three novels, and a number of poems, from the Greek and Hebrew origins of Western Culture to the present time, this course analyzes the nature of

tragedy, the changes which this concept has undergone, the relation of these changes to shifting views of man and the universe, and the significance of the study of tragedy to us today. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Anderson.

### 293a. WORKSHOP IN SECONDARY ENGLISH CURRICULUM.

A study of new approaches to English curriculum and preparation for practice teaching (visiting schools, observing classes, some apprentice teaching and tutoring, and work sessions with cooperating teachers).

*Three semester hours.*

Miss Bishop and others.

### 294b. MATERIALS AND METHODS IN TEACHING SECONDARY ENGLISH.

Review and application of specific materials and techniques in the teaching of writing and poetry. A seminar involving student interns, specialists, and experienced teachers.

*Three semester hours.*

Miss Bishop and others.

### 300a. INTRODUCTION TO GRADUATE STUDIES.

This course is devoted to an intensive general study of the three principal areas in the discipline — bibliography and textual analysis, literary history, and literary criticism — and to the relationships among them. In the study of literary criticism, alternative theoretical approaches and applications of them are examined. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Sultan.

### 301b. SEMINAR: CHAUCER.

Not offered, 1972-73.

A detailed study of selected problems of interpretation and evaluation, with wide reading in critical material and general background. Independent and original study is emphasized. Offered at the discretion of the Department. Prerequisites: English 206b (Chaucer) and consent of the instructor.

*Four semester hours.*

Mr. Anderson.

### 305a. SEMINAR: SPECIAL STUDIES IN SHAKESPEARE (315a).

Not offered, 1972-73.

A detailed study of selected problems of interpretation and evaluation, with wide reading in critical material and general background. Independent and original study is emphasized. Offered at the discretion of the Department. Prerequisite: English 212 (Shakespeare) and consent of the instructor.

*Four semester hours.*

Mr. Anderson.

### 349. READING COURSE FOR MASTER'S THESIS (31).

Prerequisite: consent of Chairman or Director of Graduate Studies.

*Three semester hours.*

Staff.

### 350. MASTER'S THESIS (310).

Prerequisite: consent of Chairman or Director of Graduate Studies.

*Three semester hours.*

Staff.

# Foreign Languages and Literatures

## DEPARTMENT FACULTY

Walter Schatzberg, Ph.D., *Associate Professor of German, Department Chairman*

Karl J.R. Arndt, Ph.D., *Professor of German\**

Raymond E. Barbera, Ph.D., *Professor of Romance Languages*

J. Richard Reid, Ph.D., *Professor of Romance Languages*

James S. Edwards, A.M., *Associate Professor of German*

J. Fannin King, M.A., *Associate Professor of Romance Languages*

Zeev Raviv, DFA, *Visiting Associate Professor of Theatre Art and Hebrew Language and Literature*

Jutta Bernstein, M.A., *Visiting Assistant Professor of German*

Marvin A. D'Lugo, Ph.D., *Assistant Professor of Spanish*

Serge Durilin, Jr., M.A., *Assistant Professor of Russian*

Emanuel S. Goldsmith, Ph.D., *Visiting Assistant Professor of Jewish Literature*

Pierre L. Horn, M.A., *Assistant Professor of French*

Hartmut Kaiser, Ph.D., *Assistant Professor of German*

Michael K. Spingler, Ph.D., *Assistant Professor of French*

Gale H. Nigrosh, M.A.T., *Instructor in French*

Catherine H. Cosman, M.A., *Lecturer in Russian Literature*

Judith P. Hallett, Ph.D., *Lecturer in Classics*

Joseph Klein, D.D., *Lecturer in Biblical Literature*

Esther M. Parnes, B.A., *Lecturer in Hebrew*

Lori R. Toepel, Ph.D., *Lecturer in Classics*

Douglass A. White, M.A., *Lecturer in Chinese Literature*

## Professor Emeritus in Residence

Claude W. Barlow, Ph.D., *Professor of Classics, Emeritus*

\*On leave of absence, first semester, 1972-73

## UNDERGRADUATE PROGRAM

Students desiring to major in the field of Foreign Languages may choose among a variety of programs to meet their particular interests as to language, literature and culture. These may be designated as: in French, in German, in Spanish, in Romance Languages, or in Foreign Languages according to the program chosen. With a departmental advisor the student works out an appropriate structure for his major, in accordance with the following guidelines:

1. A minimum of thirty-two hours of advanced courses beyond French 131, German 12, Spanish 131 if the major is in French, German or Spanish respectively. The major in Romance Languages and Foreign Languages involves a combination of courses in more than one language.

2. At least sixteen hours are to be chosen from courses in related fields such as English literature, Comparative literature, Foreign literature in translation, Linguistics, History, Philosophy, Fine Arts and Music.

3. At least thirty-six hours must be chosen from outside Group C (language and literature).

*Comparative Literature:* The department also offers a major in Comparative literature and other interdisciplinary studies involving literature, history, philosophy and psychology. These programs are

designed by the student together with a committee of two to three faculty members. Recommended courses are all those designated as Comparative Literature, Foreign Literature and Foreign Literature in translation, as well as the following: English 129, 202b, 207b, 214a, 227b, 245b; History 218a, 218b; Philosophy 14a, 14b, 19b, 121a, 122b, 123b, 124a, 140a; Psychology 221b, 228b, 231b.

*Study Abroad:* The department encourages all students to study abroad either for a summer, one semester or an entire year. Through the university's affiliation with the Institute of European Studies, campuses in Vienna, Freiburg, Paris, Nantes, Madrid and Durham are readily accessible to Clark students. For further information and to explore possibilities contact Mr. Schatzberg.

*Language Dormitory:* French and Spanish corridors with native speakers in residence are available in Dana Residence Center. Interested students should notify the departmental secretary.

## FOREIGN LANGUAGE AND LITERATURE COURSES TAUGHT IN THE LANGUAGE

### FRENCH

#### French 11. ELEMENTARY.

For beginners with no background in the language. Grounding in all four language skills (hearing, speaking, reading, writing) as preparation for subsequent courses conducted in the language. Four class meetings a week plus three half-hour periods of individual work in the language laboratory. Indivisible course.

*Four semester hours each semester.*

Mr. Reid.

#### French 11. ELEMENTARY (ADVANCED SECTION).

A fresh start for students with some background in the language but not yet qualified to enter the intermediate course. Designed to impart an active knowledge of French, through grammar study and oral practice, in class and in the language laboratory, with integrated short readings in French prose, poetry, and theater. Indivisible course.

*Four semester hours each semester.*

Mrs. Nigrosh.

#### French 12. INTERMEDIATE.

Review of French grammar. Reading and discussion of provocative works in journalistic and literary prose, as well as poetry and theater, to acquaint students with outstanding personalities and ideas in French literature. Conducted in French. Individual work in the language laboratory. Prerequisite: French 11 or equivalent background in the language.

*Four semester hours.*

Mrs. Nigrosh.

#### French 131. READINGS IN FRENCH LITERATURE.

Third-year level. The emphasis in the first semester is mainly on the study of 20th-century literature analyzed with respect to theme, tone, symbol, character and plot. The second semester deals with literary and social aspects of outstanding modern authors. Conducted in French. Prerequisite: The first semester of French 12 or equivalent skill in the language, to be determined by a placement test.

*Four semester hours each semester.*

Mr. Horn, Mr. King, Mr. Spingler.



**French 132a. THE LITERATURE OF EXISTENTIALISM.**

Third-year level. An examination of the representative works of Sartre and Camus, with special emphasis on their novels and theater. In addition, we will look at their literary criticism of certain European authors, such as Kafka, Genet and Dostoevsky. Conducted in French. Prerequisite: French 131 or equivalent level of skill in the language. Admission subject to the consent of the instructor.

*Four semester hours.*

Mr. Horn.

**French 134b. THE GREEK MYTH IN MODERN FRENCH THEATER.**

Third-year level. Readings and discussions on the adaptation of the Greek myth to reflect the changing views of man and his universe, as portrayed in selected plays by Gide, Anouilh, Sartre, and others. Conducted in French. Prerequisite: First semester of French 131 or equivalent skill in the language. Admission subject to the consent of the instructor.

*Four semester hours.*

Mr. Horn.

**French 137. ORAL AND WRITTEN FRENCH.**

The aim of this third year course is to perfect skills in communication both oral and written. In the first semester, particular attention is given to the sounds of French and to its rhythm and melodic patterns. In the second semester, increasing attention is given to grammatical patterns and written French and fluency in the spoken language. Conducted in French. Meets twice a week for two hours plus three half-hour periods in the Language Laboratory. Prerequisite: Grade of B- or higher in French 12, or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor.

*Four semester hours each semester.*

Mr. King.

**French 165. FRENCH PLAY PRODUCTION.**

A course designed to provide direct experience of the theatrical synthesis within which the play and the actor operate. The course will concentrate on one playwright, studying him in terms of all the problems peculiar to the staging of his plays, sets, props, costumes, acting, styles, gesture and blocking. The practical aspects will be synthesized with academic research into the dramaturgy, themes, social context and style of the author's period. Possible playwrights to be studied: Molière, Marivaux, Ionesco, Genet. For the fall of 1972, the playwright will be Samuel Beckett. Prerequisite: speaking knowledge of French and consent of the instructor. Given in French.

*Four semester hours.*

Mr. Spingler.

**French 180b. INTERPRETING.**

An intensive and thorough grounding in the techniques and methods of simultaneous and consecutive interpreting in both French to English and English to French. Prerequisite: good knowledge of French to be determined by oral placement test and permission of instructor.

*Four semester hours.*

Mr. Horn.

**French 241a. GENERAL VIEW OF FRENCH LITERATURE.**

From the beginning of the Age of Enlightenment to the Early Twentieth Century. An interpretation of the main currents of French literature between the age of Louis XIV and the First World War. Each period is studied concentrating on a limited number of authors or schools so as to best represent the characteristics of the period, social and philosophic as well as literary. Conducted in French. Prerequisite: Grade of B- or higher in a third year course.

*Four semester hours.*

Mr. King.

**French 241b. GENERAL VIEW OF FRENCH LITERATURE.**

From the Middle Ages through the Age of Louis XIV. An interpretation of the main currents of French literature from the Chanson de Roland through the period of the great classicists of the seventeenth century. Each period is studied concentrating on a limited number of authors or schools so as to best represent the characteristics of the period, social and philosophic as well as literary. Conducted in French.

*Four semester hours.*

Mr. King.

**French 247b. EXPOSITORY WRITINGS AND STYLISTICS.**

Not offered, 1972-73.

Introduction to *explication de textes* as a technique for the analysis of literature; study of rhetorical methods and their application, through the writing, in French, of critical essays to enhance appreciation and command of the written language. Conducted in French. Prerequisite: Grade B- or higher in a third year course. Offered in alternate years.

*Four semester hours.*

Mr. Horn.

**French 251a. THE ROMANTIC SPIRIT.**

Not offered, 1972-73.

A tracing of Romantic elements in French literature from the late middle ages to the mid-nineteenth century with principal emphasis on the period between 1820 and 1850. Conducted in French.

*Four semester hours.*

Mr. King.

**French 253b. THE NINETEENTH CENTURY NOVEL.**

Outstanding novels from Chateaubriand to the Naturalists, with particular attention to those by Stendhal, Balzac, Flaubert, and Zola. Conducted in French. Admission subject to the consent of the instructor.

*Four semester hours.*

Mr. Horn.

**French 254b. THE MODERN NOVEL.**

Not offered, 1972-73.

A study of some outstanding dramatists, novelists and poets to illustrate the diverse literary attitudes characteristic of 20th-century French literature. Conducted in French. Admission subject to the consent of the instructor.

*Four semester hours.*

Mr. Horn.

**French 255a. THE MODERN FRENCH THEATRE.**

A study of the origins and development of *le théâtre nouveau* with emphasis on dramaturgy and *mise en scene*. The focus of the course is upon the theatre since 1950 especially Ionesco, Beckett, Genet and Arrabal, but the course also explores the affinities between these playwrights and the Dada and Surrealist movements and studies three precursors: Jarry, Ghelderode and Artaud. Given in French.

*Four semester hours.*

Mr. Spingler.

**French 257b. FRENCH POETRY FROM CHARLES D'ORLÉANS TO THE BAROQUE (1400-1630).**

Not offered, 1972-73.

The main currents of French poetry from the last of the great medieval poets to the beginning of the classical period. Special attention will be given to Charles d'Orléans, Francois Villon, Clément Marot, Joachim du Bellay and Pierre de Ronsard. Conducted in French. Admission subject to the consent of the instructor.

*Four semester hours.*

Mr. King.

French 261. SENIOR TUTORIAL.

A program of extensive readings and of tutorial meetings designed to provide the student with a broad view of the whole of French literature. The readings will be planned individually for each student in order to complement his previous course work.

*Four semester hours each semester.*

Staff.

French 106. SPECIAL TOPICS IN FRENCH.

Staff.

French 206. SPECIAL TOPICS IN FRENCH.

Staff.

GERMAN

FIRST YEAR COURSES

German 8. BASIC GERMAN CONVERSATION.

This course is based on the film program *Guten Tag*, a series of German language-teaching films designed to teach simple conversational German. The 26 episodes, each 15 minutes in length, tell amusing stories of five foreigners in Germany. Each film is viewed two or three times and supplemented by drills in the classroom and the language laboratory. This course can be taken as an independent unit, but ideally it should be taken in conjunction with German 11.

*Two semester hours each semester.*

Mrs. Overvold.

German 10. READING KNOWLEDGE OF GERMAN.

A course in grammar and reading that will provide the student with the ability to read scientific and scholarly literature of average difficulty. No previous knowledge of German required. Indivisible course.

*Three semester hours each semester.*

Mr. Schatzberg.

German 11. INTRODUCTORY GERMAN.

This course is designed to impart an active command of the German language. It combines the study of grammar with oral practice and readings in literary and expository prose. Indivisible course.

*Four semester hours each semester.*

Mrs. Bernstein.

SECOND YEAR COURSES

German 12. INTERMEDIATE GERMAN.

Review of German grammar. Reading and discussion of significant works in prose, poetry and the drama to acquaint students with outstanding writers, ideas and movements in German literature.

*Four semester hours each semester.*

Mr. Kaiser.

German 13. INTERMEDIATE GERMAN READING.

An intermediate course designed for students who wish to improve and develop their reading knowledge of German through grammar review and readings in expository and literary German.

*Three semester hours each semester.*

Staff.

## ADVANCED COURSES

### German 130. MODERN GERMAN PROSE.

Selected works by Mann, Hesse, Kafka, Dürrenmatt and Grass. Discussions, oral and written reports in German. Prerequisite: German 12.

*Four semester hours each semester.*

Mrs. Bernstein.

### German 132. ADVANCED COMPOSITION AND LITERATURE.

Not offered, 1972-73.

Intensive training in the aural, oral, and written use of the language. Required of majors. Prerequisite: oral and written examination.

*Four semester hours each semester.*

Mr. Kaiser.

### German 134. GERMAN LITERATURE SINCE GOETHE.

Not offered, 1972-73.

Reading and interpretation of representative works of German literature since Goethe. Prerequisite: German 12 or advanced placement.

*Four semester hours each semester.*

### German 136a. GERMAN LYRIC POETRY.

Not offered, 1972-73.

German lyric poetry from the Reformation to the present. Prerequisite: German 12.

*Four semester hours.*

Mr. Arndt.

### German 138. MODERN GERMAN DRAMA.

Not offered, 1972-73.

Reading and interpretation of works of modern German drama, including plays of Wedekind, Kaiser, Brecht, Dürrenmatt, Frisch, and Weiss. Discussions, oral and written reports in German. Prerequisite: German 12.

*Four semester hours.*

Mr. Schatzberg.

### German 140. THE AGE OF ENLIGHTENMENT AND THE PERIOD OF STORM AND STRESS.

Not offered, 1972-73.

A study of the major ideas and authors of the German Enlightenment with emphasis on the conflict between rationalism and irrationalism in the second half of the eighteenth century. Prerequisite: German 12.

*Four semester hours.*

Mr. Schatzberg.

### German 142b. GERMAN ROMANTICISM.

Not offered, 1972-73.

An analysis of German Romanticism from its beginnings in the seventeen-nineties to its decline in the eighteen-thirties. Aesthetic credos, lyric poetry, the drama, major prose works (among them the fairy tale as an art form) will be discussed in their relation to the intellectual history of the period. Authors include the Schlegel brothers, Hölderlin, Novalis, Tieck, Wackenroder, Kleist, Brentano, E.T.A. Hoffman, Eichendorff and Heine. Given in German. Prerequisite: German 12.

*Four semester hours.*

Mr. Kaiser.

### German 145: THE GERMAN NOVELLE.

An historical and critical study of this uniquely German genre. Particular attention will be paid to narrative technique and to the typical features of the Novelle distinguishing it from the short story on



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the one hand and from the novel on the other. Selections range from Early Romanticism to Thomas Mann. Where applicable, a number of poems by the author under consideration will be discussed. Given in German. Prerequisite: German 12.

*Four semester hours.*

Mr. Kaiser.

### German 154. HISTORY OF GERMAN LITERATURE.

Not offered, 1972-73.

Survey of German literature from earliest times to the present. Given in German. Prerequisite: German 132 or consent of the instructor.

*Four semester hours each semester.*

### German 162a. GOETHE'S FAUST.

Not offered, 1972-73.

Reading and discussion of Goethe's *Faust I and II*. Given in German. Prerequisite: German 132 or consent of the instructor.

*Four semester hours.*

Mr. Arndt.

### German 166b. GERMAN DRAMA FROM LESSING TO EXPRESSIONISM.

Reading and discussion of representative plays by the chief German dramatists from the end of the eighteenth to the early twentieth century. The course will focus on the socio-political aspects of these works, on the aims and concepts of the dramatic art and the changing traditions in playwriting. Authors include Lessing, Goethe, Schiller, Kleist, Grillparzer, Büchner, Hebbel, Hauptmann, Schnitzler and Kaiser. Given in German. Prerequisite: German 12.

*Four semester hours.*

Mr. Kaiser.

### German 190a. GOETHE.

Not offered, 1972-73.

An introduction to the life and work of Goethe, excepting his *Faust*. Prerequisite: consent of the instructor. Given in German.

*Four semester hours.*

Mr. Arndt.

### German 192b. SCHILLER.

Not offered, 1972-73.

An introduction to the life and work of Schiller. Prerequisite: consent of the instructor. Given in German.

*Four semester hours.*

Mr. Arndt.

### German 196. INDEPENDENT READING AND RESEARCH IN GERMAN LITERATURE.

Independent course of study limited to qualified juniors and seniors. Reading and research will be in German or English and the program arranged individually. Prerequisite: consent of the instructor.

*Variable credit.*

Staff.

### German 198. SEMINAR.

Principally for advanced students of literature, this course aims at an interdisciplinary approach. Topic varies.

*Four semester hours.*

Staff.

## HEBREW

### Hebrew 11. ELEMENTARY MODERN HEBREW.

Emphasis on the spoken, living Hebrew language. Acquisition of vocabulary and basic grammar

through reading of simple texts. Part of course, audio-visual method of "Habet U Shma." Three class meetings a week plus one hour of drill and one hour of individual work in a language laboratory. Prerequisite: Students must have phonetic reading facility with Hebrew script. Indivisible course. Mrs. Parnes.  
*Four semester hours each semester.*

## Hebrew 12. INTERMEDIATE MODERN HEBREW.

Reading of graded texts: Selected works from modern Hebrew literature, newspapers, etc. Enrichment and reinforcement of grammatical structures and written expression. Three class meetings a week plus one hour of drill and one hour of individual work in a language laboratory. Prerequisite: The equivalent of Hebrew 11. Mr. Raviv.  
*Four semester hours each semester.*

## ITALIAN

### Italian 11. ELEMENTARY ITALIAN.

For beginners. Grounding in all four language skills (hearing, speaking, reading, writing) with an emphasis on reading skills. Meets three times per week; three half-hour periods of individual work in the language laboratory. Indivisible course. Mr. Barbera.  
*Four semester hours.*

## RUSSIAN

Clark students may take courses in Russian language and literature at the College of the Holy Cross and Assumption College through the Consortium.

### Russian 11. INTRODUCTORY RUSSIAN.

An introduction to the written and spoken language. Four class periods and three laboratory sessions per week. Indivisible course. Mr. Durilin.  
*Four semester hours each semester.*

### Russian 12. INTERMEDIATE RUSSIAN.

Advanced Russian grammar. Continued emphasis upon reading and conversation. Three class periods, one supervised drill session, and three laboratory sessions per week. Open to qualified freshmen. Mr. Durilin.  
*Four semester hours each semester.*

### Russian 13. ADVANCED RUSSIAN.

Not offered, 1972-73.  
Intensive reading of contemporary and literary sources. Advanced composition and conversation. Mr. Durilin.  
*Three semester hours each semester.*

### Russian 88. DIRECTED READINGS.

Students interested in specific authors and/or topics in Russian literature and civilization may receive instruction and guidance in either English or Russian. Mr. Durilin.  
*Variable credit.*

## SPANISH

## Spanish 11. ELEMENTARY.

For beginners or others not yet qualified to enter the intermediate course. Grounding in all four language skills (hearing, speaking, reading, writing) as preparation for subsequent courses conducted in the language. Four class meetings a week plus three half-hour periods of individual work in the language laboratory. Indivisible course.

*Four semester hours each semester.*

Mr. Reid.

## Spanish 12. INTERMEDIATE.

This course is designed to improve one's reading skill. Conducted in Spanish. Three class meetings a week plus three half-hour periods of individual work in the laboratory. Prerequisite: Spanish 11 or equivalent skill in the language, to be determined by a placement test. Students will normally proceed into Spanish 131 at the end of the first semester of Spanish 12.

*Four semester hours each semester.*

Mr. D'Lugo.

## Spanish 127b. PRACTICE IN ORAL SPANISH.

Not offered, 1972-73.

An advanced intermediate course to help students develop oral fluency and accuracy. Two meetings a week: one for study and practice in phonetics for the improvement of pronunciation; the second for active oral use of Spanish in a variety of ways. Full participation in both parts of the course will be expected. Prerequisite: the first half of Spanish 12 or the equivalent; open to students with more preparation when appropriate. This course is not to be considered the equivalent of the second half of Spanish 12 as preparation for advanced literature courses. Permission required.

*Two semester hours.*

Mr. King and Mr. Reid.

## Spanish 131. READINGS IN MODERN SPANISH-AMERICAN LITERATURE.

Third year level. Close examination of the principal writers and movements in the development of 20th Century Spanish-American prose. Special emphasis on the "New Narrative" of Borges, Cortázar, García Márquez, Fuentes and Vargas Llosa. Conducted in Spanish. Prerequisite: Spanish 12 or equivalent skill in the language.

*Four semester hours.*

Mr. D'Lugo.

Spanish 132b. INTRODUCTION TO SPANISH LITERATURE  
OF THE 20TH CENTURY.

Reading and discussion of selected works from the Generation of 1898 to the contemporary period (Unamuno, Pío Baroja, García Lorca, Cela, Buero Vallejo, Sastre). Emphasis on conflictual structures within dramatic and narrative works: individual vs. the group, as seen particularly in the Civil War and its effects upon subsequent literary and social development in Spain.

*Four semester hours.*

Mr. D'Lugo.

## Spanish 134b. ASPECTS OF MEXICO.

Not offered, 1972-73.

This course aims to communicate something of the rich and unique cultural heritage of Mexico as seen through its history from pre-Columbian times down to the present, and especially as portrayed by creative writers since the cataclysmic events of the Revolution of 1910. According to the inclinations

of the students, attention may also be given to such factors as the indigenous cultures, archeology, folklore, politics and art, and the profound effects of Mexico's extraordinary diverse geography on the life of the people. Conducted in Spanish. Prerequisite: at least the first semester of Spanish 131, or the equivalent.

*Four semester hours.*

Mr. Reid.

**Spanish 134.1a, 134.1b. MEXICAN THEMES.**

Not offered, 1972-73.

Independent study of literature dealing with some theme of Mexican culture, chosen by the student. Written report. Limited to students currently enrolled in, or who have previously completed, Spanish 134b, or have had some comparable introduction to Mexico.

*Variable credit.*

Mr. Reid.

**Spanish 135. HISPANIC ETHOS AND CINEMA: THE FILMS OF LUIS BUÑUEL.**

Viewing, discussion and analysis of the major films of Luis Buñuel in the context of the cinematic medium as well as in the broader tradition of a particular critique of Hispanic social values. The recurrent motifs of catholicism and the church, charity, violence and sexual repression will be examined as cinematic form and substance. Readings will include film scripts, film criticism, and source novels. Conducted in Spanish. Prerequisite: Spanish 12 or equivalent skill in the language. Attendance at 10 film showings during the semester (approximately one weekly) will be required of students taking the course for credit. All films will be subtitled in English.

*Four semester hours.*

Mr. D'Lugo.

**Spanish 137b. ORAL AND WRITTEN SPANISH.**

Third-year level. A rapid, intensive review of grammar; the elements of phonetics; exercises in composition and pronunciation; conversational practice. Conducted in Spanish. Two regular class periods, one two-hour session, and one to two hours in the laboratory per week. Prerequisite: Grade of B- or higher in Spanish 12 or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor. Offered in alternate years, spring semester.

*Four semester hours.*

Mr. Barbera.

**Spanish 242a. EARLY SPANISH LITERATURE FROM THE POEMA DE MIO CID TO THE CELESTINA.**

Not offered, 1972-73.

This course will emphasize the nature of epic poetry, the first manifestation of "realism" in the literature of the Middle Ages, and will culminate in the hybrid masterpiece, the *Celestina*, a combination of novel and drama, unique in the history of European literature. Conducted in Spanish. Prerequisite: Grade of B- or higher in a third year course. Offered in alternate years.

*Four semester hours.*

Mr. Barbera.

**Spanish 243a. CERVANTES.**

This course will concentrate upon *Don Quixote*. The picaresque novel will be read for its influence upon Cervantes. The views of important essayists will be studied in conjunction with the reading of the *Quixote*. Conducted in Spanish. Prerequisite: Grade of B- or higher in a third-year course.

*Four semester hours.*

Mr. Barbera.

**Spanish 244b. THE DRAMA OF THE SIGLO DE ORO.**

Besides studying the major figures such as Lope de Vega, Tirso de Molina, Alarcón and Calderón de la Barca, there will be some study of the origins of the drama in Spain. Conducted in Spanish.



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Prerequisite: Grade of B- or higher in a third-year course.

*Four semester hours.*

Mr. Barbera.

Spanish 245a. THE MODERN NOVEL.

Not offered, 1972-73.

A number of 19-century novels will be read. The 20th century will be represented by such outstanding novelists as Galdós (who bridges the 19th and 20th centuries), Unamuno, Valle-Inclán, Baroja and Delibes. Conducted in Spanish. Prerequisite: Grade of B- or higher in a third year course. Offered alternate years.

*Four semester hours.*

Mr. Barbera.

Spanish 106. SPECIAL TOPICS IN SPANISH.

Staff.

Spanish 206. SPECIAL TOPICS IN SPANISH.

Staff.

### FOREIGN AND COMPARATIVE LITERATURE COURSES TAUGHT IN ENGLISH

#### CLASSICS

Classics 135a. GREEK DRAMA: TRAGEDY AND COMEDY.

Analyses of selected tragedies and comedies of Aeschylus, Sophocles, Euripedes and Aristophanes with an emphasis on the nature, purpose and origins of tragedy and comedy; the religious and moral problems posed; play production in the ancient theater.

*Four semester hours.*

Mrs. Toepel.

Classics 140b. GREEK AND ROMAN EPIC AND ROMANCE.

True nature and evolution of the epic from the oral improvisation of Homer to the elaborate composition of Vergil and of the Greek and Roman prose narratives, the "proto-novels," such as the *Satyricon*, the *Golden Ass* and the *Romance of Daphnis and Chloe*.

*Four semester hours.*

Mrs. Toepel.

Classics 145a. WOMEN IN CLASSICAL ANTIQUITY: GRECO-ROMAN  
ROLE-STEREOTYPING AND ITS CONTEMPORARY IMPLICATIONS.

Ancient Greek and Roman views of women — as expressed in literature, history, philosophy, legal documents and art — and their relation to women's actual social position and behavioral role; a consideration of the impact of classical ideas on later Western literature and thought.

*Four semester hours.*

Mrs. Hallett.

#### COMPARATIVE LITERATURE

Comp. Lit. 18. LITERATURE AND THE NATURE OF MAN.

Not offered, 1972-73.

Ideas held by outstanding literary artists of the Western World concerning the nature of man and his relation to the universe. The works are also to be studied as representative of the cultures of which they are products. The subject matter discussed includes Sophocles' *Oedipus the King*, *The Book of Job*, Dante's *Divine Comedy*, Shakespeare's *King Lear*, Milton's *Paradise Lost*, Molière's *Misanthrope*,

Goethe's *Faust*, and selected poems of T.S. Eliot. All non-English works are read in translation. Admission subject to the consent of the instructor.

*Four semester hours each semester.*

Mr. King, Mr. Anderson.

Comp. Lit. 160b. THE QUEST FOR THE PERFECT SOCIETY IN  
GERMAN LIFE AND LITERATURE.

Not offered, 1972-73.

One of the strongest influences of German culture on the American way of life was exerted through such German-American communistic communities as Ephrata, The Harmony Society, The Separatists of Zoar, the Amana Society of True Inspiration, The Hutterites, and the Communia of Karl Marx's early collaborator Wilhelm Weitling. The success of the Harmony Society was a direct influence on the establishment of Alcott's Fruitlands and Brook Farm. The purpose of this course is to examine the German literary quest for the perfect life or society and compare it with the facts of life in the above-named and other "perfect societies." Among the translated German books to be read are: Andrea's *Christianopolis*, Grimmelshausen's *Simplicissimus*, Goethe's *Wilhelm Meister*, Nietzsche's *Zoroaster*, Werfel's *Star of the Unborn*, Jünger's *Heliopolis*, and Hesse's *Bead Game*. Other works are: Nordhoff: *The Communistic Societies of the United States*, and Bestor: *Backwoods Utopias*. Given in English. No prerequisites.

*Three semester hours.*

Mr. Arndt.

Comp. Lit. 165b. FROM EXPRESSIONISM TO CATASTROPHE.

This course will study German and related world literature from the dawn of Expressionism before World War I to its catastrophic decline with the flowering of National Socialism, its antithesis, and the Götterdämmerung of World War II. Anglo-German and Franco-German literary cross currents will naturally become a part of the study. Given in English with extra credit for German majors or such able to carry on additional work in the original German.

*Three semester hours.*

Mr. Arndt.

Comp. Lit. 170b. SEMINAR IN EXISTENTIALISM  
AND MODERN EUROPEAN FICTION.

Not offered, 1972-73.

Kierkegaard's *The Sickness unto Death* provides the unifying theme for an intensive study of a number of major works of 19th and 20th century Russian, German, and French writers. These include Gogol, Dostoevsky, Nietzsche, Kafka, Rilke, Sartre and Camus.

*Four semester hours.*

Messrs. Wright, Schatzberg, Durilin, and Horn.

Comp. Lit. 175b. EUROPEAN ROMANTICISM.

A study of the origins and development of the Romantic imagination in France and Germany. Questions about the unity of Romanticism and about the relation of romantic to modern literature will be raised.

*Four semester hours.*

Mr. Horn, Mr. Kaiser and Mr. Schatzberg.

Comp. Lit. 180b. IRRATIONAL CURRENTS IN CONTEMPORARY THEATRE.

A study of the preoccupation in modern theatre with "primitive" forms of dramatic expression such as ritual, myth, magic, non-verbal communication, theatre as a form of popular psychotherapy.

*Four semester hours.*

Mr. Spingler.



Comp. Lit. 188. THE BUDDHIST TRADITION IN INDIA,  
CHINA AND JAPAN.

Within the framework of an historical survey, attention will be focused on specific topics such as basic teachings, literary developments, styles of cultivation and cross-cultural interactions. The course involves readings, lectures, discussions, and optional "laboratory exercise," one paper and a final examination.

*Four semester hours.*

Mr. White.

Comp. Lit. 190b. CRITICAL APPROACHES TO LITERATURE AND THE ARTS.

Reading and discussion of a wide range of critical schools (Formalism, Structuralism, Mythic and archetypal criticism, Historical and Marxist criticism) in an effort to provide the student with an understanding of the nature and variety of critical commentary as well as an opportunity to develop his own critical abilities through analysis of a limited number of narrative and dramatic models.

*Four semester hours.*

Mr. D'Lugo.

Comp. Lit. 197b. THE FAUST THEME IN LITERATURE AND MUSIC.

A study of man's search for forbidden knowledge and power is represented in literature and music by the character of Faust from the Reformation to the present. The following major treatments of the theme are included in the course. *The History of the Damnable Life, and Deserved Death of Doctor John Faustus* (1592), Marlowe's *Dr. Faustus*, Klinger's *Faustus, His Life, Death, and Doom*, Goethe's *Faust*, Thomas Mann's *Dr. Faustus*, Paul Valéry's *Mon Faust*, Lawrence Durrell's *An Irish Faust*, Berlioz's *Damnation of Faust*, Boito's *Mefistofele*, Gounod's *Faust*, and Liszt's *Faust Symphony*. Given in English.

*Three semester hours.*

Mr. Arndt.

Comp. Lit. 210. THE LITERARY HERO.

As early as 1499, in European literature, a harlot becomes the heroine of a major work. The intrusion of characters of less than heroic stature is an innovation that merits some study. Beginning with the *Celestina*, and followed by a number of works including *Lazarillo de Tormes* and *Moll Flanders*, an attempt will be made to trace the increasing importance of characters of "piccola nazione" in the literary work. Heroic qualities yield to their opposite. The questions and problems that arise as a result of such a displacement will be the subject of analysis and commentary.

*Four semester hours.*

Mr. Barbera.

## FRENCH

French 130a. MODERN FRENCH NOVEL.

Readings and discussions of outstanding works of contemporary French fiction, including novels by Gide, Malraux, Sartre, and Camus.

*Four semester hours.*

Mr. Horn.

French 130b. THE THEATER OF REVOLT.

Not offered, 1972-73.

A study of plays representative of surrealist, symbolist, existentialist and absurdist theater, and discussion of Artaud's theory of the Theater of Cruelty. Among the playwrights to be read: Jarry, Cocteau, Vitrac, Camus, Beckett, Vian, Sartre, Ionesco, Césaire and Genet.

*Four semester hours.*

Mr. Spingler.

## French 150b. ROUSSEAU AND HIS DISCIPLES.

Not offered, 1972-73.

An extensive study of Rousseau and his disciples: the "naive" Bernardin de Saint-Pierre and Chateaubriand and the "cynical" Choderlos de Laclos and Marquis de Sade. Conducted in English.

*Four semester hours.*

Mr. Horn.

## GERMAN

## German 116. COLLOQUIUM ON MODERN GERMAN LITERATURE.

The purpose of this course is to examine some of the dominant themes in modern German literature and to acquire skill in interpreting literary works. Enrollment is limited to assure every student the opportunity for active participation. Subject for fall, 1972: Selected prose works of Rilke, Mann, Hesse, Kafka, Grass. Given in English.

*Four semester hours.*

Mr. Schatzberg.

## German 141. GERMANIC CIVILIZATION.

Not offered, 1972-73.

Illustrated lecture course on the literature, history and fine arts of German lands from the Holy Roman Empire to the present day, with emphasis on the Reformation, Age of Enlightenment and the Classical Period. Given in English.

*Three semester hours each semester.*

## German 145a. THE MEDIAEVAL COURTLY EPIC IN THE GERMAN LANDS.

Not offered, 1972-73.

Influenced by the experience of the Crusades and the Holy Land, the legends of the Celtic King Arthur, the love poetry of Moorish Spain and the Provence, poets at the court of Eleanor of Aquitaine and Marie of Champagne created epic masterpieces, which were to be models for poets at German courts. The works of three of these men, Hartmann von Aue, Wolfram von Eschenbach and Gottfried von Strassburg, which have taken their place in world literature, will be at the center of this study. Given in English.

*Three semester hours.*

## German 150a. BAROQUE AND ROCOCO ART AND LITERATURE IN THE GERMAN LANDS.

Not offered, 1972-73.

An illustrated lecture course treating the interrelationship of the art and literature of the German lands between 1648 and 1748, the poetry of the age striving to express in words what the artist will express in stone and painting. Given in English.

*Two semester hours.*

## German 170b. MUSIC IN GERMAN LITERATURE AND THOUGHT.

Not offered, 1972-73.

Countless musicians, philosophers, and writers have speculated on the nature of music, its mysterious power to influence people and to communicate strong feelings. This course will be devoted to reading and discussion of works by the following authors from the German speaking countries of the nineteenth and twentieth centuries: Wackenroder, Kleist, Schopenhauer, E.T.A. Hoffmann, Goethe, Grillparzer, Heine, Mörike, Wagner, Nietzsche, Hesse, and Thomas Mann. The approach will be predominantly thematic; however, several works will be studied which reveal the author's successful attempts to employ musical devices and structures in his literary creations.

*Two semester hours.*

Mr. Kaiser.

German 199. THE GERMAN CONTRIBUTION TO WORLD LITERATURE. Not offered, 1972-73. Goethe in 1827: "The epoch of world literature is here and everyone must now work to hasten the development of this epoch." Reading, analysis and discussion of translated works from various periods of German literature, starting with the *Song of the Nibelungs* and ending with representative works of the currently dominant "Group 1947." Given in English. Prerequisite: consent of the instructor.  
*Four semester hours each semester.* Mr. Arndt.

## HEBREW

Hebrew 119a. HEBREW SCRIPTURES — PENTATEUCHAL AND HISTORICAL BOOKS.  
A survey and critical analysis of Genesis, Exodus, Leviticus, Numbers, Deuteronomy, Joshua, Judges, Samuel and Kings.  
*Three semester hours.* Rabbi Klein.

Hebrew 120a. HEBREW SCRIPTURES — PROPHETIC AND WISDOM LITERATURE.  
Not offered, 1972-73.  
An analysis of relevant texts in Amos, Hosea, Micah, Isaiah, Ezekial, Proverbs, Job, Ecclesiastes in terms of their historical, social and religious background and their role in shaping the thinking of the Biblical Age.  
*Three semester hours.* Rabbi Klein.

Hebrew 150a. AMERICAN JEWISH LITERATURE OF SURVIVAL,  
1850 TO THE PRESENT.  
The problems of Jewish religious and cultural continuity in America as reflected in essays, memoirs, poetry and fiction. Topics to be discussed include the immigrant experience, assimilation and identity, anti-Semitism, the influence of American democracy on Judaism, religious and secularist ideologies, Zionism, the impact of the European holocaust, and the relationship of American Jews to Israel.  
*Three semester hours.* Mr. Goldsmith.

Hebrew 165a. MODERN HEBREW LITERATURE.  
A survey of the renaissance of Hebrew language and literature from the 1880's to the establishment of the State of Israel 1948. Major currents and modes will be noted from readings of Hebrew writers in the area of fiction, essay, poetry and drama. Among the writers to be read and discussed: Mendele, Ahad Ha-am, Berdichevsky, Frishman, Peretz, Bialik, Tchernihovsky, Schneour, Kahan, Greenberg, Brenner, Berkowitz, Gnessih, Shoham.  
*Four semester hours.* Mr. Raviv.

Hebrew 175b. THE LITERATURE OF MODERN ISRAEL.  
The major problems facing the "old and new" generation of Israeli novelists, short story writers, poets and dramatists will be explored. Among the writers included will be Agnon, Hazaz, Burla, Shenberg, Yizhar, Schlonsky, Altermann, Goldberg, Karni, Shamir, Meged, Amihai, Yehoshua, Oz.  
*Four semester hours.* Mr. Raviv.

## RUSSIAN

## Russian 170a. DOSTOEVSKY.

This course will focus on various aspects of Dostoevsky's art and thought, through lectures and class discussion. Readings include shorter works, such as "Notes from the Underground," and the major novels, *Crime and Punishment*, *The Idiot*, *The Possessed* and *The Brothers Karamazov*. Given in English.

*Four semester hours.*

Miss Cosman.

## Russian 175b. MODERN RUSSIAN PROSE.

A selection of outstanding Russian prose works of the 19th and 20th centuries. Readings include stories of Pushkin, Gogol, Chekhov, Babel and Olesha, as well as novels by Biely, Pasternak, and Solzhenitsyn. Given in English.

*Four semester hours.*

Miss Cosman.

## SPANISH

## Spanish 130a. CERVANTES.

Not offered, 1972-73.

This course will concentrate upon *Don Quixote* with excursions into other writings of Cervantes illustrating the changes in his literary development. Cervantes' debt to previous literary works will be studied. Extensive reading of critical material pertinent to the *Quixote* will be required. The course will be conducted in English. For students without a command of Spanish, readings will be available in English.

*Four semester hours.*

Mr. Barbera.

## LINGUISTICS

## Linguistics 115. MAN AND LANGUAGE.

Not offered, 1972-73.

An introduction to the analysis of the nature and function of human language and its role in the life of individuals and societies. The approach is interdisciplinary with attention to the points of view of philology, contemporary linguistics, anthropology, psychology and philosophy. The lectures focus on such questions as: What is language? What is the relation between language and thought? To what extent does our language determine how we perceive the world? Why and how do languages change? What other functions does language serve besides communication? Why do we not have a world language? How have linguists achieved an objective, scientific analysis of linguistic systems? What are the limitations of such a science?

The course is designed for the general student who wishes to know more about the nature of the uniquely and universally human institution of language, and for the student or teacher of English or foreign languages who is interested in the light which linguistic science can throw upon the relations between his field and other areas of life and knowledge.

First semester: lectures. Second semester: a seminar in which the members of the group report in depth on problems of their choosing.

*Four semester hours each semester.*

Mr. Reid.

## Linguistics 260a. LINGUISTICS AND LANGUAGE LEARNING.

An exploration of various fields of linguistic study from the point of view of their relevance to foreign language learning. Intended to meet the needs of two classes of students: (1) prospective foreign



language teachers who already have advanced mastery of their language (since that is not a concern of this course); and (2) other students with a more general interest in the nature of language, whose primary orientation may be toward related problems in, for example, psycholinguistics or sociolinguistics.

Approaching language as *behavior* and as *system*, the course directs attention to the levels ranging from the culture-system to the system of the language as a whole, and finally to its sub-systems — lexical, grammatical and phonological. Consent of the instructor required.

*Four semester hours.*

Mr. Reid.

## Geography

### FACULTY

Saul B. Cohen, Ph.D., *Professor of Geography*

*Director of the Graduate School of Geography*

Leonard Berry, Ph.D., *Professor of Geography*

Gerald J. Karaska, Ph.D., *Professor of Geography; Editor of Economic Geography*

Robert W. Kates, Ph.D., *Professor of Geography*

Duane S. Knos, Ph.D., *Professor of Geography*

Henry J. Warman, Ph.D., *Professor of Geography*

Martyn J. Bowden, Ph.D., *Associate Professor of Geography*

William A. Koelsch, Ph.D., *Associate Professor of History and Geography*

Lawrence A. Lewis, Ph.D., *Associate Professor of Geography*

Roger E. Kasperon, Ph.D., *Associate Professor of Geography and Government*

Anne Buttimer, Sr. Mary Annette O.P., Ph.D., *Assistant Professor of Geography\*\**

George F. McCleary, Jr., Ph.D., *Associate Professor of Geography\**

J. Richard Peet, Ph.D., *Associate Professor of Geography*

Richard A. Howard, Ph.D., *Assistant Professor of Geography and Biology*

Douglas Johnson, Ph.D., *Assistant Professor of Geography*

Timothy O'Riordan, Ph.D., *Visiting Associate Professor of Geography*

David Sharon, Ph.D., *Visiting Professor of Geography*

Emanuel Maier, Ph.D., *Visiting Professor of Geography*

### STAFF

Polly Carew, *Map Curator*

Norman Carpenter, *Manager, Cartographic Laboratory*

### PROFESSORS EMERITI IN RESIDENCE

Raymond E. Murphy, Ph.D., *Professor of Economic Geography, Emeritus*

Samuel Van Valkenberg, Ph.D., *Professor of Geography, Emeritus*

Each year the School of Geography has in residence or as off-campus affiliates a number of Research Affiliates. For 1972-73, these are: Harry Schwarz, Asher Schick, David Sharon, Gerhard Tschannerl and Ian Burton. Also Dr. Kazimierz Dziewonski of the Polish Academy of Arts and Sciences will be a visitor in residence in Geography.

\*On leave of absence, 1972-73

\*\*On leave of absence, Semester II, 1972-73

When the Graduate School of Geography was organized in 1921, Clark became the second university in the United States to establish a separate graduate program in geography. At the present time, advanced training is provided leading to the Master's and Doctor's degrees. In addition, the school offers an undergraduate major, and a 7- and 5-year program, A.B.-Ph.D. and A.B.-A.M. degrees. Clark is a center for geographical training and research in the United States, and its various offerings provide a maximum of individual attention through student-teacher dialogue.

#### UNDERGRADUATE PROGRAM

Majors in Geography are required to take Geography 11, Survey of Geography, and Geography 111, Skills and Tools in Geography, as well as 18-24 hours of other courses in the discipline. Alternative to Geography 11, majors may substitute Geography 11a and two introductory courses from the following fields: Physical Geography, Economic Geography, Cultural Geography or Maps and Mapping. The list of related courses is available from the School office. Majors are to complete 16-20 hours in related work.

For those taking a dual or interdisciplinary major, both Geography 11a and 111 are required, as well as 10-12 hours in other geography courses.

An Honors Program in Geography offers opportunity for independent study and research. Information regarding the program can be obtained from the School.

#### THE GRADUATE SCHOOL OF GEOGRAPHY

*Admission:* Applicants without prior training in Geography are welcome, but depending on their concentrations, may be required to improve their knowledge of Elements of Geography, Economic Geography, Cartography, or Descriptive Statistics. Courses taken to remedy any deficiencies will not count as part of the regular program. The Graduate Record Examination scores (Verbal and Quantitative) are required of all students with the exception of those in foreign countries. The GRE Advanced Placement Test in Geography is desirable, but not required.

*Degree Objectives:* The graduate program in Geography at Clark has been derived from a synthesis of faculty-student discussions, documents and experiences. The Ph.D. training program stands as the central thrust in the Graduate School of Geography at Clark. In the context of the graduate training program, it is assumed that students may wish to pursue two tracks: One, the traditional Ph.D. with its training and experiential requirements in research and in teaching (assuming minimal steps for competence in the latter); the other, the Ph.D. with training related directly to the competence of individuals as college Geography teachers, the thrust being in a combination of work relating to the teaching and learning of Geography as a Social Science, and specialization in one major sub-field in Geography. The new T.T.T. program in geography (Training of Teachers of Teachers) is a focus for this track.

The School of Geography fosters student and faculty exchange with other institutions, including institutions outside the field of Geography and with Geography departments elsewhere. Clark has long encouraged ties with foreign Geography students and faculty. Focus, in recent years, has also included links with developing institutions in the U.S. through training of prospective faculty and facilitating programs.

*Specialized Programs in Sub-Fields:* The curriculum is organized to focus on specialized programs in sub-fields of Geography. Such sub-fields are developed around a series of sequentially-oriented courses which, in general, will occupy from one-third to no more than one-half of the student's formal doctoral program. The sub-fields will be organized in accordance with the interests, competencies and

breadth of the staff. Programs in Environmental Management, Political Geography, Urban Geography, Geomorphology, Historical Geography, Geography and its Teaching, are examples of concentrations. Minor field concentration is also required, permitting, as a side benefit, shifts in the major concentration or sub-field. Therefore, even those students who arrive with pre-conceived notions about the major concentration will have opportunities to switch to other fields. In general, sub-fields are organized around committees with four to five staff members. Responsibility for supervision of the student's course, dissertation and other training experiences is with the sub-field adviser.

In organizing the curriculum in this specialized structured manner, there is neither the intention nor the desire to exclude faculty and students who do not wish to operate within the framework of a formal sub-field. Students may wish to create their own personalized programs or fields of concentration outside of the formal sub-fields. The only limit to this lies in the general nature of the offerings and in the interests and competencies of staff. Where formal, specialized programs do not exist, it becomes the responsibility of the major adviser to develop, together with the students, a program whose various prerequisites will follow the general form and intent of the Clark Graduate Geography program. Development and evaluation of specialized programs rests heavily on the activities of joint student-faculty committees. Passing off prerequisites (e.g., substantive course background, statistical methods, computer science, or cartography) is essentially the responsibility of the specialized concentration, as is the encouragement of cross-disciplinary training.

*Core Course:* (Geog. 396a) An introductory, core course is required of all entering graduate students, and offered in the first semester of residence. The course is concerned with MODELS, EXPLANATION AND VALUES IN GEOGRAPHY, and emphasizes the various approaches to problem formulation in the field. A limited portion of the course permits students to become acquainted with the various members of the staff and their offerings. This Core Course carries six credits. Papers, exercises and reports are used as a basis for diagnosing and evaluating student performance.

*Formal Course Requirements:* Other than the Core Course and those courses considered prerequisite to the specialized or individually-tailored program, no formal course requirements are set. It is the full responsibility of a student's adviser to require that a student take courses in areas of deficiency. Such courses might be required on a formal basis, on an audit basis, or through organized readings.

*Residence Requirement:* A three-year residence beyond the A.B. degree is required for Ph.D. program. One of the years in residence must be the year in which the dissertation proposal is submitted and approved, and, as part of the three-year residence the student must remain in residence for one semester (or one summer under direct supervision) following approval of the outline to work on the dissertation. After approval of the dissertation proposal, if the dissertation is not completed by the end of four years, the proposal must be submitted for re-approval. One prerequisite for such reapproval is provision for one academic semester's residence during the next year to work on the dissertation. (Twelve weeks during the summer is considered the equivalent of an academic year semester for this purpose, with the proviso that a faculty member be in residence at Clark during the summer and express a willingness to supervise.) Upon completion of all formal requirements, save the completion of the dissertation, the student is expected to file for candidacy with the Graduate School, unless specific permission not to file is granted by the School of Geography. Students entering with an M.A. in a field other than Geography will be expected to take essentially the three year residence program. Students entering with an M.A. in Geography from another institution may expect to complete their residence in five semesters, or two and one-half years.

*Teaching or Research Prerequisite:* Some research or teaching experience at Clark (or its equivalent at



another institution) is prerequisite to the Doctor's degree. Every effort is made to organize various forms of internships to provide on-and-off-campus training activities, at the research and teaching levels, generally at the end of the second year of residence.

#### *Doctor of Philosophy:*

##### *A. Language and/or Alternative Requirement:*

Options to examination in a traditional foreign language are available. These include (1) computer science, (2) statistical methods, and (3) cartography; in addition, other options can be required or made available by individual concentrations, with the approval of the faculty. The requirement varies with the concentration.

##### *B. Field Camp*

Field Camp is not a general requirement, but is offered and may be designated as a requirement by specific concentrations.

##### *C. History and Philosophy of Geography*

The history and philosophy of Geography is required as part of the Ph.D. examination, in the form of a written qualifying essay related to the major sub-field of concentration, demonstrating a knowledge of the intellectual history of the concentration and of its relations to the remainder of the discipline.

##### *D. The Ph.D. Examination*

All Ph.D. candidates must prepare themselves for examination in three fields. The major field examination consists of a 90 minute oral examination. The student may opt for either a 45 minute oral or a 3 hour written examination in each of the two minor fields. Selection of fields should be made in consultation with the major adviser and the supervisory committee at least two months in advance of the examination dates, and is subject to departmental approval. In selecting the three fields, breadth in an interrelated set of sub-fields, depth in connection with the proposed dissertation topic, or competencies and availability of staff are considerations.

Under normal circumstances it is expected that the language requirement (or its alternatives) will have been successfully met prior to the student's taking the Ph.D. examination. Approval of the dissertation proposal may precede the Ph.D. examination. Doctoral examinations are not normally conducted between May 1 and September 15, and should be requested sixty days before the desired date.

##### *E. Committee System for Ph.D. Dissertation:*

The dissertation committee is composed of five faculty members, with responsibilities for: (a) approval of the outline; (b) reading and reviewing of the dissertation (two readers and three reviewers); and (c) participating in the dissertation defense. When the dissertation proposal has been approved by the committee in its entirety or majority, a letter to this effect shall be submitted to the Geography office by the first reader together with 20 copies of the proposal. The director of the School will then circulate the proposal to each member of the faculty for comments and final approval will be made by the director in the light of these comments.

When the draft of the dissertation has been approved by the committee, three copies of the draft with a letter to the effect of the approval, signed by the first reader, will be submitted to the Geography office. The director will then inform the faculty that these copies are available for examination for a period of two weeks. Anytime after the end of the two week period, the defense may be scheduled. In addition to the committee, any member of the Clark faculty (geography or other departments) is invited to participate in the defense. A week before the defense date, notices will be



given of the defense to the Dean of the Graduate School. If the defense is adequate, then the dissertation in final form is delivered, with two copies to the departmental office and the ribbon copy to the Registrar.

*Master of Arts:* While the thrust of the Clark Geography Program is at the doctoral level, two types of M.A. degrees will be made available:

#### *A. The Pre-Doctoral M.A.*

Students working toward the Ph.D. will be granted, upon request, an M.A. degree at the end of the required residence period, having completed: (a) the dissertation proposal; (b) required coursework; (c) the Ph.D. preliminary examination; and (d) a formal research paper approved by the concentration adviser.

#### *B. The Non-Doctoral M.A.*

Normally no later than at the end of the first semester of the second year of residence, after a review process that includes a proficiency paper in the concentration at the end of the first year, students may opt or may be advised to shift to a terminal M.A. degree, under which circumstances they will be expected to drop one or two courses in order to write a thesis. This thesis is envisaged as a research paper or short article (15-30 pages), demonstrating an ability to define a problem as well as serving as evidence of research competence. The thesis would be presented in such a manner as to meet the form and standards of a professionally acceptable article, and will be defended as the Master's Oral Examination.

After approval by the committee, three copies of the final draft with a letter by the major advisor noting committee approval will be delivered to the Geography office. The director will then announce to the faculty that the draft is available for examination. Anytime after the end of ten days, the defense may be scheduled. In addition to the committee, any member of the Clark faculty (geography or other departments) is invited to participate in the defense. A week before the defense date, notice will be given of the defense to the Dean of the Graduate School. The thesis committee consists of the major adviser and two reviewers. After approval by committee, three copies of the final draft are circulated to the faculty as a whole. Following defense of the thesis, two final copies are delivered to the departmental office and the ribbon copy to the registrar. Thesis defense should be conducted by May 1st to meet June commencement.

C. Since 1971-72, formal 7- and 5-year programs for Clark undergraduate students have been offered, leading to the Ph.D. and A.M. degrees in geography. At the undergraduate level, applicants must major in Geography and a dual or interdisciplinary field, and make application at the end of the first semester of the junior year. The A.B.-Ph.D. program includes one (the sixth) year off-campus, in residence at another university or agency. Admissions are limited to a very small number of highly qualified students and in subfields of concentration that are appropriate to Clark's range of offerings. For specific information, contact the Director of the School of Geography.

### DISTINCTIVE FEATURES AND SPECIALIZATION

The School of Geography is housed in completely new quarters, opened for the fall of 1970. Graduate students are assigned carrels in the Geography Workroom. The Workroom and other sections of the Geography Building contain specialized equipment and research facilities for the use of students and staff. The Libbey Library of the Geography Workroom serves as the student lounge, and the John K. Wright Mezzanine serves as the Reading Room. Workroom fees totaling \$10 per semester are payable on November 1 and March 1.

Cross-disciplinary training, as evidenced by the three joint appointments held by geography faculty with other departments; the clustering of faculty research and teaching interests in several areas having to do with the man-environment system; and specialization in urban-economic, environmental management, environmental behavioral, political, historical, cultural geography and geomorphology currently characterize the school.

#### PUBLICATIONS

A professional magazine, *Economic Geography*, is edited by a faculty member. Started at Clark University in 1925, it is the only journal published in English that specializes in economic and urban geography. The magazine has a world-wide distribution with a total circulation of about 5,000.

The graduate students, through the years, have maintained the Clark University Geographical Society. The annual publication, *The Monadnock*, keeps School of Geography alumni in touch with each other and with news and scholarly activities in the School.

#### COURSES

##### 11a. SURVEY OF GEOGRAPHY.

A general framework for understanding geography, with emphasis on the interrelation of process through various approaches to geographic research. Urban, physical, economic, political, cultural and regional segments will be synthesized by various faculty. For freshmen and sophomores; juniors and seniors admitted with consent of instructor.

*Four semester hours.*

Mr. Johnson, Coordinator, and Staff.

##### 14b. THE CHANGING WORLD: THE PHYSICAL GEOGRAPHY IMPUT.

Investigation and evaluation of the role of man as a geomorphic and climatological agent with emphasis on alterations of the "natural" environment within the physical geographic sphere. An evaluation of the ramifications of these alterations in selected specific cases.

*Four semester hours.*

Mr. Lewis.

##### 15b. INTRODUCTION TO ECONOMIC GEOGRAPHY.

(See 1972-73 Evening College Catalog.)

##### 17b. INTRODUCTION TO CULTURAL GEOGRAPHY.

(See 1972-73 Evening College Catalog.)

##### 18b. MAN AND ENVIRONMENT IN THE AMERICAN PAST.

Not offered in 1972-73.

*Four semester hours.*

Mr. Koelsch.

##### 19b. MAPS AND MAPPING.

(See 1972-73 Evening College Catalog.)

##### 105a. ENVIRONMENTAL MANAGEMENT.

The course will cover traditional and modern theories of resource allocation and management. These theories will be supported by analysis of a number of case studies from different parts of the world. The main emphasis of the course will be upon the 'software' facets of environmental management including the social, economic, political, psychological, legal and institutional aspects.

*Four semester hours.*

Mr. O'Riordan.

111. SKILLS AND TOOLS IN GEOGRAPHY.

A synthesis of statistics, cartography computer science and other techniques that are relevant to geographical analysis. Prerequisite: Geography 11a.

*Five semester hours each semester.*

Mr. Lewis, Coordinator and Messrs. Sharon and Cerny.

113b. FRESHMAN PRO-SEMINAR (POPULATION) — THE HUMAN RESOURCES OF THE UNITED STATES.

Themes will be: counting and locating human resources; composition of the human resources; trends — in size and mobility; quality of the human resources; enhancement and debilitation of the human resources; and resource development in the realm of democracy. Signature of the instructor required.

*Four semester hours.*

Mr. Warman.

114a. DYNAMICS OF THE EARTH'S SURFACE.

An introduction to environmental systems; processes affecting the earth's surface, gravity, water, biotic, wind and man related. Erosional-depositional rates, their causes and their results.

*Four semester hours.*

Mr. Berry.

115a. CULTURAL ECOLOGICAL SYSTEMS.

Investigates cultural adaptations to a variety of ecological settings. Selected case studies are used to illustrate systematic aspects of life style adjustments in a number of the earth's major environmental regions.

*Four semester hours.*

Mr. Johnson.

122a. METEOROLOGY AND PHYSICAL CLIMATOLOGY.

The elements of climate and weather dealt with first separately and then in their interrelationships. The atmosphere studied as a thermodynamic engine. Exchanges of heat and moisture between the earth and atmosphere. Man's inadvertent role in climate change. Prerequisite: Physical Geography or its equivalent, and signature of the instructor. (See also Geog. 322b — Applied Climatology).

*Four semester hours.*

Mr. Warman.

123b. MAN'S IMPACT ON THE FACE OF THE EARTH.

A study of man's interaction with the earth's physical environmental system as a result of human use of the earth.

*Four semester hours.*

Mr. Johnson.

125a. DEVELOPMENT PROBLEMS.

"The widening gap between the developed and the developing world has become a central issue of our time". (Pearson Report 1969). This will be a non-disciplinary and team taught course which aims at equipping participants with a knowledge of some dimensions of this issue, encouraging study and activity in development problems, and provides an examination of the role of the developed world in them. Listed jointly with Government.

*Four semester hours.*

Mr. Berry, Coordinator, Cynthia Enloe and Others.

130b. THE GEOGRAPHY OF INTERNATIONAL POLITICS.

Concentrates on the impress of politics upon landscape in unique regional settings. Problem-oriented, within the context of a world regional survey. Prerequisite: Geography 11a or Government 14.

*Four semester hours.*

Mr. Cohen.

**140b. CITIES AND CULTURE.**

A cross-cultural comparison of urban development from earliest times to the present. Emphasis will be upon different internal structures and the changing patterns of external relations of cities.

*Four semester hours.*

Mr. Bowden.

**150b. AQUARIUS: PLANNING FOR URBAN WATER RESOURCES.**

Help wanted: Water resource planners for City of Aquarius to prepare 50-year plan for water supply, water quality, flood control, and recreation. Includes opportunity to use advanced computer simulation. Group collaboration required.

*Four semester hours.*

Mr. Kates and Staff.

**160a. INDUSTRIAL GEOGRAPHY.**

The location of manufacturing and the historical development of industrial cities are the contexts for a discussion of working class life and problems. Emphasis is placed on the social consequences of industrial change. Policies to control the location of job opportunities are outlined.

*Four semester hours.*

Mr. Peet.

**161b. GEOGRAPHY OF AMERICAN POVERTY.**

The extent and location of poverty in the United States. Government anti-poverty policy and some alternative socialist strategies. Poverty regions of the rural periphery — Appalachia, the South, the Spanish Southwest. Migration of poor people. Ghetto formation in northern cities. Limited.

*Four semester hours.*

Mr. Peet.

**171a. SOCIAL GEOGRAPHY.**

*Four semester hours.*

Not offered in 1972-73.

Miss Buttimer.

**188b. EAST AFRICA: PROBLEMS OF A DEVELOPING REGION.**

*Four semester hours.*

Not offered in 1972-73.

Mr. Kates, Coordinator and Staff.

**200a. GEOGRAPHY IN EDUCATION.**

Geography backgrounds, techniques and prospects contributing to the geography discipline per se and geography in the social studies. Designed for those teaching or expecting to teach in present and planned school systems. Individual projects produced on a semi-tutorial basis. Signature of instructor required.

*Four semester hours.*

Mr. Warman.

**201b. SEMINAR ON RECREATION.**

The course will be divided into four parts, dealing with the changing meanings and uses of leisure and recreation, problems in the evaluation of outdoor recreation as a resource, issues in the management of outdoor recreational facilities including both urban and wilderness recreation, and case studies in applied recreational research. The aim is to introduce the student to the variety of philosophical concepts and methodological techniques associated with modern research in recreation.

*Four semester hours.*

Mr. O'Riordan.

**202. HONORS.**

Independent study, reading and research. Open only to honors undergraduates.

*Four to six semester hours.*

Staff.



**203b. INTERNSHIP TEACHING.**

An intensive period of observation and teaching in the field of geography at the high school and junior high school level. Individual supervision will be given by the staff and by cooperating teachers.

*Eight semester hours.*

Mr. Knos and Staff.

**204a. INTRODUCTION TO GEOGRAPHY AND ITS TEACHING.**

An introduction to the construction and development of learning-teaching situations in geography. Existing curriculum materials will be studied to identify and develop essential components of learning and knowing. These components will be used in the construction of other curriculum materials and the development of teaching strategies for use in geography classrooms. This is a model for a comprehensive study of the processes of teaching and learning. Listed jointly with Education.

*Nine semester hours.*

Messrs. Knos and Schwarz.

**206b. UNDERGRADUATE SEMINAR: EVALUATION OF INTERNSHIP TEACHING.**

This course deals with bringing together interns, cooperating teachers and staff to evaluate the activities carried on in the internship program. Open only to those involved in Geography 203a – Internship Teaching.

*Four semester hours.*

Mr. Knos and Staff.

**207b. POLITICAL GEOGRAPHY: TERRITORIALITY: POSSESSION, ORGANIZATION AND DEFENSE.**

A behavioral approach to the study of human groups (neighborhoods, cities, nations) in possession, organization and defense of territory.

*Four semester hours.*

Mr. Maier.

**208a. WAR/PEACE.**

This course is an introduction into open-ended research – and discussion – to discover non-lethal resolution of conflicts between groups of human beings in a finite world.

*Four semester hours.*

Mr. Maier.

**210. ENVIRONMENTAL PROCESSES MEASUREMENT AND ASSESSMENT.**

A study of basic environmental processes leading to an analysis of the measurement and assessment of environmental systems. Field studies concentrate on the problems of environmental assessment with alternative sites provided for developing and developed areas.

*Two semester hours.*

Messrs. Lewis and Reynolds.

**215a. FLUVIAL PROCESSES IN GEOMORPHOLOGY.**

Application of analytical and experimental techniques to the study of running water and its effects on landforms. Prerequisite: Geography 114a.

*Four semester hours.*

Mr. Lewis.

**217a. UNDERGRADUATE SEMINAR IN PHYSICAL GEOGRAPHY.**

Discussion of themes in physical geography oriented to the needs of the group but probably with a bias towards geomorphology and biogeographical aspects.

*Four semester hours.*

Messrs. Berry and Lewis.

**230a. POLITICAL GEOGRAPHY AND ITS SPATIAL CONSEQUENCES.**

Theory and methodology in Political Geography. Political processes and landscape interaction, at varying levels of the political hierarchy (national, urban, international). Attention to such topics as equilibrium, systems, decision-making, political action space. Open to juniors and seniors. Prerequisite: Geography 11a or Government 14.

*Four semester hours.*

Mr. Cohen.

**230b. BEHAVIORAL PERSPECTIVES IN POLITICAL GEOGRAPHY.**

Not offered, 1972-73.

*Four semester hours.*

Mr. Kasperson.

**233b. ENVIRONMENTAL BEHAVIOR AND COGNITION.**

A state-of-the-art review of theory, methodology and empirical study of the "world inside peoples' heads".

*Four semester hours.*

Messrs. Bowden and Kates.

**235b. SEMINAR IN TECHNOLOGY AND MAN.**

This course will be designed along interdisciplinary lines for juniors, senior and graduate students. The object of the course is to identify and assess the impact of major technological development on the bio-physical environment and upon social values and institutions. Attention will be given to the broad question of social responsibility and scientific inquiry and the impact of political forces on scientific research and publication. Two specific problem areas will be studied in great detail, namely energy production, distribution and consumption and urban transportation systems. Listed jointly with Physics.

*Four semester hours.*

Mr. O'Riordan.

**241a. FOREST RESOURCE MANAGEMENT.**

Not offered, 1972-73.

*Four semester hours.*

**242a. PLANTS, MAN AND WATER.**

The water using requirements of agriculture systems from ancient to modern times will be examined.

*Four semester hours.*

Mr. Howard.

**248. MODEL BUILDING TECHNIQUES.**

Not offered, 1972-73.

*Four semester hours.*

Mr. Howard.

**250b. SPECIAL PROJECTS: ENVIRONMENTAL PLANNING.**

A full time commitment to work on problems of environmental resource use. Projects will involve field research, analysis and report writing. Permission required.

*Four semester hours.*

Mr. Kates and Staff.

**252b. HISTORICAL GEOGRAPHY: METHODS, TECHNIQUES AND SOURCES.**

*Four semester hours.*

Messrs. Bowden and Koelsch.

**260a. POLITICS OF ENVIRONMENTAL MANAGEMENT.**

Problems and processes in the public management of the natural environment: the public interest,

natural resource policy, the planning process, allocation conflicts, grass-root participation. Listed jointly with Government.

*Four semester hours.*

Mr. Kasperson

261a. URBAN ECONOMIC GEOGRAPHY.

A systematic study of external and internal spatial relationships of cities and city systems. Urbanization viewed as a process in spatial organization involving mutual interrelations among decision units.

*Four semester hours.*

Mr. Karaska.

262b. URBAN PROBLEMS.

This course deals with the process of decision-making in placement of utilities in the urban landscape. A series of locational and developmental problems are posed for consideration within the context of a city.

*Four semester hours.*

Mr. Knos.

263b. THE FUTURE: WAYS OF KNOWING AND SURVIVAL.

Not offered, 1972-73.

*Four semester hours.*

Mr. Kates.

264b. REGIONAL PLANNING.

The first part of the semester will be an introduction to the rationale for and procedures of regional planning; this will be done through lectures, discussions, and a sampling of some of the planning literature. The second half of the semester students will work individually or in groups with staff members on a specific project.

*Four semester hours.*

Staff.

265a. UNDERGRADUATE SEMINAR ON REGIONAL PLANNING.

The entire seminar this year will be devoted to new towns in Britain and the United States. Students must be able to take part in an extended field trip in the early fall. Prerequisite: Geography 161b and permission. Limited to twenty students.

*Four semester hours.*

Mr. Peet.

270a. URBAN SOCIAL GEOGRAPHY.

This course reviews two alternative perspectives on the city: (1) an "external" perspective which explores the locational characteristics of urban populations, the dynamics of urban service networks and administrative systems, (2) an "internal" perspective which explores people's territorial behavior, interaction networks and images. Through a series of case studies and field observation, an attempt will be made to integrate these two perspectives in an examination of lived experience in the city. Prerequisites: Geography 11a and Urban Geography 261a.

*Four semester hours.*

Miss Buttimer.

275b. CITIZEN PARTICIPATION, ADVOCACY AND DISSENT.

The purpose of the course will be (1) to analyze major theories as to the causes and forms of participation in the politics, (2) to examine our understanding of participation in the context of alternative models (e.g., pluralist welfare state, elitist power structure, technological state) of the polity and (3) to review the major means available to the powerless for utilizing participation as a means of creating power. Throughout, the course will establish an interplay between theoretical

discussions of the nature of participation and a series of comparative analyses of case studies of participation, including specific attention to advocacy and dissent. One method to be employed in the latter cases will be to examine life histories of advocacy and dissent efforts and biographies of the major actors. Some of the urban decision-making games currently available for educational use will be considered as supplements to the course. Listed jointly with Government.

*Four semester hours.*

Messrs. Kasperson and Goodman.

#### 277b. SEMINAR: PROCESS OF URBANIZATION.

The purpose of this seminar is to integrate existing curricula in geography and political science by focusing on an interdisciplinary analysis of the consequences of urban growth for patterns of economic and political integration and participation. The seminar will examine generalizations in the context of both developed countries and underdeveloped countries and largely by a data-oriented approach. Listed jointly with Government.

*Four semester hours.*

Messrs. Peet and Goodman.

#### 278b. SEMINAR: CULTURAL ECOLOGY.

This course pursues one of the major research thrusts in cultural geography. Special emphasis is placed on the origin and utility of ecological models in geographic analysis.

*Four semester hours.*

Mr. Johnson.

#### 283b. REGIONAL GEOGRAPHY OF LATIN AMERICA.

Regionalizing techniques applied to greater and lesser Antilles, Mexico and Central American Republics, South American continent and countries. Problems of diversity and unification discussed. Role of Latin America world-wide. Signature of instructor required.

*Four semester hours.*

Mr. Warman.

#### 285a. REGIONAL GEOGRAPHY OF POLAND.

*Four semester hours.*

Mr. Karaska.

#### 294. CARTOGRAPHIC TECHNIQUES.

Methods of map preparation and reproduction including computerized mapping programs.

*Four semester hours.*

Staff.

#### 295a. REGIONAL GEOGRAPHY OF EUROPE.

A general regional survey of Europe with emphasis on man-land relationships. No prerequisite.

*Four semester hours.*

Mr. Van Valkenberg.

#### 304. SEMINAR IN GEOGRAPHY AND ITS TEACHING.

*Four semester hours.*

Mr. Knos.

#### 316b. LABORATORY TECHNIQUES AND FIELD OPERATIONS IN GEOMORPHOLOGY.

The details of this course will be worked out with special relation to the needs and interests of each group of participants.

*Four semester hours.*

Mr. Berry.

#### 322b. APPLIED CLIMATOLOGY.

Elements of physical climatology and climate classifications applied and related to physical factors



(vegetation, soil, physiography) and to human and cultural attributes of selected regions. (See Geography 122a also.) Signature of instructor required.

*Four semester hours.*

Mr. Warman.

### 330. SEMINAR IN RESEARCH AND TEACHING PARAMETERS IN POLITICAL GEOGRAPHY.

First semester involves a research topic to be handled by one or more teams. Research will concentrate on theory formulation and testing. Second semester includes responsibility for supplementary undergraduate tutorial sessions in connection with the sessions to be organized around the background and interests of seminar participants.

*Four semester hours.*

Mr. Cohen.

### 347b. ADVANCED QUANTITATIVE METHODS IN GEOGRAPHY.

Multivariate analysis including analysis of variance; miscellaneous spatial statistics (including nearest neighbor, graph and game theories, and other analyses). Undergraduates admitted with consent of the instructor.

*Four semester hours.*

Mr. Sharon.

### 348b. ADVANCED MODELLING TECHNIQUES.

Advanced modelling techniques will be discussed.

*Four semester hours.*

Mr. Howard and Staff.

### 350a. RESOURCE MANAGEMENT: THEORIES, METHODS AND MODELS.

Theory to explain how men use resources, methods to assess resources availability and project their use, and models to integrate theory and method to make decisions.

*Four semester hours.*

Mr. Kates, Coordinator and Staff.

### 351a. PROBLEMS IN DEVELOPED COUNTRIES.

The course will focus on a number of major environmental issues facing developed countries today and will draw upon the expertise of faculty from a number of disciplines. The aim of the course is to ask why these problems have developed, what impact they are having on both the human and non-human environment and to search for appropriate public policies to offset the deleterious consequences as analyzed.

*Four semester hours.*

Mr. O'Riordan.

### 352b. RESOURCE MANAGEMENT: PROBLEMS OF DEVELOPING AREAS.

Selected managerial problems emphasizing problems of resource assessment, agricultural development and water resource planning.

*Four semester hours.*

Mr. Berry, Coordinator and Staff.

### 354a. SEMINAR IN ENVIRONMENTAL SYSTEMS.

Systems analysis and models related to environmental management.

*Four semester hours.*

Mr. Howard.

- 355b. ENVIRONMENTAL HAZARDS RESEARCH SEMINAR. Not offered, 1972-73.  
*Four semester hours.* Mr. Kates.
- 357b. REGIONAL WATER RESOURCE PLANNING.  
 Advanced regional water resource planning methodology is reviewed and then applied by students to a specific region of current interest.  
*Four semester hours.* Mr. Schwarz.
- 363a. SEMINAR: DYNAMICS OF CITY GROWTH.  
 An historical approach to study of the changing internal structure of urban areas. A review of recent contributions to the literature of urbanism with particular reference to studies of large metropolitan areas.  
*Four semester hours.* Mr. Bowden.
- 365a. SEMINAR IN GEOGRAPHY OF POVERTY. Not offered, 1972-73.  
*Four semester hours.* Mr. Peet.
- 366a. URBAN GEOGRAPHY SEMINAR.  
 A review of the regional science literature leading to problems on models and techniques of metropolitan area analysis.  
*Four semester hours.* Mr. Karaska.
- 367b. RURAL SETTLEMENT SEMINAR.  
*Four semester hours.* Mr. Bowden.
- 372a. RESEARCH DESIGN AND METHODOLOGY IN HUMAN GEOGRAPHY.  
*Four semester hours.* Mr. Rowles.
- 396a. PARADIGMS, THEMES AND MODELS IN GEOGRAPHIC THOUGHT  
 (CORE COURSE).  
 Theory, models and approaches in Geography.  
*Six semester hours.* Mr. Bowden and Miss Buttimer.
- 399a. FIELD RESEARCH METHODS IN GEOGRAPHY AND FIELD CAMP.  
 Theory and techniques of field (observational and survey) research; experimental design. Field camp in January to be held in Jamaica. Fee: \$125.00 or more.  
*Four semester hours.* Messrs. O'Riordan, Johnson and Lewis.

## READING, RESEARCH AND THESIS COURSES

300. READING COURSE.  
 Prerequisite: consent of the instructor.
301. RESEARCH IN GEOGRAPHY.  
 Prerequisite: consent of the instructor.

302. THESIS AND DISSERTATION RESEARCH.

Single or double course. Prerequisite: consent of the staff.

322a. ADVANCED APPLIED CLIMATOLOGY.

The application of modern research techniques to problems of climatology and metric climatology will be of particular value to students interested in resources and physical geography.

Four semester hours.

Mr. Sharon.

# Government and International Relations

## DEPARTMENT FACULTY

Morris H. Cohen, Ph.D., *Professor of Government; Representative, Washington Semester Program*

Sherman S. Hayden, Ph.D., *Professor of International Relations*

Cynthia H. Enloe, Ph.D., *Associate Professor of Government and International Relations; Director of the IUPP Graduate Program*

Allan E. Goodman, Ph.D., *Associate Professor of Government and International Relations; Department Chairman*

Roger E. Kasperon, Ph.D., *Associate Professor of Government and Geography*

Knud Rasmussen, Ph.D., *Associate Professor of Government; Head Tutor, Sophomore-Junior Tutorial Program*

Sharon P. Krefetz, M.A., *Assistant Professor of Government, Director of Interdisciplinary Studies*

Ivory T. Robinson, M.A., *Lecturer in Government and International Relations*

Robert J. Smith, M.A., *Lecturer in International Relations*

Glenn W. Ferguson, J.D., *President and Adjunct Professor of Government*

Marjorie A. Pearsall, *Administrative Assistant*

## UNDERGRADUATE PROGRAM

### *Nature and Purpose.*

Concentration in the Department is designed to provide students a balanced program of work in social science with emphasis on the interdisciplinary study of politics and political behavior. The Department seeks to maximize Clark's teaching and research resources by providing all students interested in social science early access to small seminars and contact with faculty research. For those who will major in the Department, this program will lead to some form of student-faculty independent research by the senior year. Requirements are based on the division of total semester hours required for graduation (128 are required for the Class of 1975 and for all succeeding classes) into thirds, balancing basic work within the Department with opportunities for either interdisciplinary work under departmental sponsorship or interdepartmental work leading to a dual major.

To facilitate the design of each student's academic program, the Department will provide advisors to those requesting them. Such requests should be made to the Department's Administrative Assistant in September or January of each academic year.

### *I. Basic Requirements (44 hours)*

Students concentrating in the Department are required to complete the following:

#### A. Introduction to Political Science (normally to be completed by the end of the Sophomore year):

1. Eight hours of introductory work in social science. The Department strongly recommends that prospective majors take one semester of Govt. 205 as part of their introduction to the Department and the field.

2. Eight hours in the Political Studies Seminar Program. Each semester, 2-3 seminars will be offered to Freshmen and Sophomores. For the 1972-73 academic year, the Political Studies Seminar Program will include the following:

Semester I

- Gov. 160a Seminar: The Political System: Macropolitical Analysis  
Gov. 165a Seminar: Introduction to Comparative Political Analysis

Semester II

- Gov. 161b Seminar: Extinction or Evolution  
Gov. 162b Seminar: Commentaries on American Government  
Gov. 163b Seminar: Politics and Society  
Gov. 164b Seminar: Comparative Political Behavior

- B. Tutorial in Political Science (for sophomores and juniors): Eight hours of tutorial must be taken. Designed as an intensive study group, each program will be tailored to individual interests and needs. Emphasis will be placed upon the examination of established theories, development of propositions about political phenomena, and application of both to concrete cases for discussion. Approximately 25 pages of written work will be required and, at the end of the tutorial, students will receive both a grade and a copy of their tutor's written evaluation of work and participation. An in-process evaluation will be held by means of a tutorial retreat approximately half-way through the semester.

- C. Twenty-eight hours of electives in at least three of the following fields:

- a) Political Thought and Behavior  
(two courses in this field are mandatory)
- b) American Government and Politics
- c) International Politics
- d) Comparative Government
- e) Urban Studies

Note: With Department approval, introductory work described in A-1 may be counted toward completion of the electives requirements.

*II. Interdisciplinary Studies (40 hours: 12 required, 28 optional.)*

Students may design, with their advisor's approval, their own segment of course programs from offerings of any department or established interdisciplinary program (e.g., New Academic Center and Technology and Man). Course work here must, however, include 12 hours in at least three of the following related disciplines: History, Economics, Sociology, Psychology and Geography. Students may also use this opportunity to participate in dual major and self-designed programs, and should consult with their advisor for details.

*III. Unrelated Fields (36 hours)*

The College Board requires, and the Department agrees, in addition to the above, that students complete 36 hours of course work in fields unrelated to the above. The Department strongly recommends that students seek a liberal arts education as part of their approach to the study of politics, and is also prepared in its advisory capacity to assist students in designing this segment of their program.

## THE PLAN OF STUDY

At the beginning of the sophomore year, every student concentrating in Government should complete a Plan of Study (on a form provided by the Department) with a selection of courses sufficient to meet the requirements set forth in the Announcements on Concentration in Government. This plan should be discussed with, and must be signed by, a tutor or faculty member representing the Government



Department. The form should be returned to the Department Office by the beginning of November.

The Plan of Study is a preliminary statement of intent by the student and may be altered or amended after consultation with the tutor or adviser, provided the selection of courses satisfies the requirements of the Department and the College.

Each time a student changes his academic program, he is required to file a new Plan of Study with the Department.

### THE GRADUATE PROGRAM

Work for the Master of Arts degree centers on the Department's two-year program in International Urbanization and Public Policy (IUPP). Rapid urban growth throughout the world, a fact of today and certain to continue hereafter, and the current lack of adequate public policy planning for this reality, have led the Department to launch such a program.

The program integrates course work with field research and internship opportunities. It provides great possibilities for joint research, shared by faculty members of this Department and students and faculty of other departments. Each student in the program prepares a thesis in his field of special interest, under the supervision and with the assistance of the appropriate member of the Department, and defends the thesis orally before an interdisciplinary committee.

In addition to this research, each student is expected to complete at least 30 semester hours of course work with at least a 3.0 average. Most, in fact, complete in excess of 60 semester hours, especially if internships and other external projects are included. Frequent student-faculty colloquia enhance the possibilities for group work and contact. Each student is assigned a principal adviser at the beginning of the academic year; each year's program must be approved by the Chairman by 10 October. Independent research projects normally await the second year, when they are emphasized and encouraged; if such research is undertaken off campus, it is desirable that the last months of the program should be spent in on-campus thesis research and writing.

Proficiency in a foreign language is very desirable, though not strictly required. All students must, however, demonstrate basic proficiency in quantitative analysis and methodology. Finally, it is presumed that every student will complete the program within the normal period of residence.

The degree of Doctor of Philosophy is being held in abeyance at the present time; however, the Department anticipates its reintroduction in the near future. The present program will facilitate the transition to advanced work elsewhere, whether within or without a university.

### COURSES

#### 14. INTERNATIONAL RELATIONS.

A survey of world politics since 1918, with emphasis on the shifting patterns of power and the rise of new nations and revolutionary doctrines. The second semester deals mainly with events since World War II.

*Four semester hours each semester.*

Mr. Hayden.

#### 15a. INTRODUCTION TO AMERICAN GOVERNMENT.

An introductory study of the processes and efficacy of the American governmental system. Primarily devoted to an overview of contemporary aspects of the national government, the course includes problems of federalism, salient civil liberties issues, and the roles of Congress, the President, the Supreme Court and political parties in the decision-making process.

*Four semester hours.*

Mr. Cohen.

**125a. DEVELOPMENT PROBLEMS.**

"The widening gap between the developed and the developing world has become a central issue of our time." (Pearson Report 1969) This will be a nondisciplinary and team-taught course which aims at equipping participants with a knowledge of some dimensions of this issue, encouraging study and activity in development problems, and provides an examination of the role of the developed world in them. Listed jointly with Geography.

*Four semester hours.*

Mr. Leonard Berry, Coordinator, Cynthia Enloe and Others.

**160a. SEMINAR: THE POLITICAL SYSTEM: MACROPOLITICAL ANALYSIS.**

The seminar will discuss modes of analysis of political systems drawing on the works of Almond & Powell, Dahl, Lasswell, Lipset and Easton. These will be subject to intensive study and analysis, in order to accept, modify, or reject them, based on American and developing countries' experiences.

*Four semester hours.*

Mr. Rasmussen.

**161b. SEMINAR: EXTINCTION OR EVOLUTION.**

"If Sparta and Rome perished, what State can hope to endure forever?" Does Rousseau's question become relevant to 20th century societies? How long will the U.S. last, and what will be the causes and consequences of its demise? This seminar will examine contemporary theories on the development of society and analyze contemporary proposals and perspectives on the future existence of society. Discussions will center on the work of such activist-thinkers as Ivan Illich, Marcuse, Raskin, and Reich. Freshmen and sophomores only.

*Four semester hours.*

Mr. Rasmussen.

**162b. SEMINAR: COMMENTARIES ON AMERICAN GOVERNMENT.**

Among the books analyzed and discussed are: *The Federalist Papers*, DeTocqueville's *Democracy in America*, Bryce's *The American Commonwealth*, Wilson's *Congressional Government*, Lippman's *The Public Philosophy* and another still to be selected. Freshmen and sophomores only.

*Four semester hours.*

Mr. Cohen.

**163b. SEMINAR: POLITICS AND SOCIETY.**

A study of the utility and limits of employing social variables to explain political phenomena. The major social variables to be explored as independent variables are: social class, education, sex, religion, economic growth, and membership in voluntary associations. Among the political phenomena to be viewed as dependent variables are: political socialization, political participation, alienation, mass movements, violence, stability vs. instability, and "democracy" vs. other forms of government. Freshmen and sophomores only.

*Four semester hours.*

Mrs. Krefetz.

**164b. SEMINAR: COMPARATIVE POLITICAL BEHAVIOR.**

This course analyzes politics from the perspective of the individual — how he learns and weighs political values and beliefs, how he is influenced and influences others, how he reacts to appeals of leaders, parties and mass media. Much of the theory on political behavior has been based solely on American data. This course will examine patterns of individuals' beliefs and actions in other nations. Developed as well as underdeveloped countries will be studied. Freshmen and sophomores only.

*Four semester hours.*

Miss Enloe.

**165a. SEMINAR: INTRODUCTION TO COMPARATIVE POLITICAL ANALYSIS.**

The seminar will survey the growth of the field of comparative politics and its methodology as focal points for analyses in political research. A series of propositions about the nature of political order and political change will be discussed in order to examine the causes and results of revolution, economic development and the creation of political institutions and political power in developing societies. Emphasis will also be placed upon the use of case studies (chosen by students) in comparative analyses and upon the development of standards of evidence in comparative research. Freshmen and sophomores only.

*Four semester hours.*

Mr. Goodman.

**167a. THE COLD WAR.**

An analysis of the global conflict between the Soviet Union and the United States to the present. Lectures and discussions will attempt to clarify important aspects of the origin and development of the Cold War since World War II. Changes in the nature of the Cold War in the Kennedy-Johnson years will be examined. Consideration will also be given to recent developments in Chinese-American relations and U.S. Asian policy in general. Prerequisite: Govt 14b or see instructor.

*Four semester hours.*

Mr. Smith.

**205a. RECENT POLITICAL THEORY.**

A study of modern political theory as developed in the context of the social, political, and economic forces which have shaped Western thought since the French Revolution.

*Four semester hours.*

Mr. Rasmussen.

**207a. BLACK POLITICAL THOUGHT.**

Not offered, 1972-73.

**220a. URBAN GOVERNMENT AND POLITICS.**

The primary focus of this course is on the various socio-economic and political inputs that affect the functioning of American urban political systems. What are the resources and constraints which the inputs place upon and provide for the decision-makers? Topics to be discussed include: the social, economic, and political nature of the city, the effects of the state and federal governments, relations between city and suburb, political structures and styles, the distribution of power, and race, ethnicity, and ethos theory. In the latter part of the course some attention will be given to differences in urban policy outputs, primarily in the fields of education and welfare. Where relevant, differences and similarities in the politics of urban areas outside the United States will be considered. Open to sophomores, juniors and seniors.

*Four semester hours.*

Mrs. Krefetz.

**222b. SEMINAR: PUBLIC POLICIES AND AMERICAN CITIES.**

What difference does it make "who governs"? What sorts of variations are there among cities in their policy outputs in such areas as welfare, education, poverty, health, the police, and the criminal courts, and what accounts for the differences? After a critical review of the existing literature, research will be conducted on a policy area of the student's choosing in Worcester and/or other cities. Prerequisite: Govt 220a or permission of the instructor.

*Four semester hours.*

Mrs. Krefetz.

**240a. SEMINAR IN INTERNATIONAL RELATIONS.**

Current problems in American foreign policy studied in relation to the larger world. Strongly



recommended for majors emphasizing international relations. Open to limited number of non-majors.  
*Four semester hours.* Mr. Hayden.

#### 241a. INTERNATIONAL LAW.

The historic principles of international law in peace and war, and their application in the modern world.  
*Four semester hours.* Mr. Hayden.

#### 241b. SEMINAR IN INTERNATIONAL ORGANIZATION.

A study of the principal institutions created to handle problems of commerce, welfare and collective security on an international basis.  
*Four semester hours.* Mr. Hayden.

#### 250b. RECENT POLITICAL THOUGHT: THE CASE FOR SCANDINAVIA.

Twentieth century political thinking with specific reference to Scandinavian thought. Analysis of the contemporary impact of thinkers such as Kierkegaard, Strindberg, Ibsen and Hans Christian Andersen. The examination of major trends as they constitute either unique Scandinavian developments or reflect a broader European pattern of thinking.  
*Four semester hours.* Mr. Rasmussen.

#### 251a. AMERICAN POLITICAL PARTIES AND PRESSURE GROUPS.

A study of the structure and functioning of the American party system and the role of selected interest groups in American politics including some ethnic and economic influences. Special emphasis is placed on the processes and problems involved in the nomination and election of the President.  
*Four semester hours.* Mr. Cohen.

#### 254b. AMERICAN CONSTITUTIONAL LAW AND CIVIL LIBERTIES.

A study of the major developments and problems of American Constitutional law and judicial behavior in the area of civil liberties. Approached primarily by analysis of court cases, the course includes such issues as freedom of speech, press, and religion, civil rights and selected aspects of the rights of a person accused of crime. Emphasis is placed on recent and contemporary developments and on class discussion.  
*Four semester hours.* Mr. Cohen.

#### 255b. SEMINAR IN THE LEGISLATIVE PROCESS.

A study of policy-making in Congress, involving problems of legislative organization and procedure, leadership and presidential-legislative relationships, examined primarily by the case method and by individual research on particular pieces of recent legislation. Prerequisite: Government 15a.  
*Four semester hours.* Mr. Cohen.

#### 256b. PROSEMINAR: AMERICAN CONSTITUTIONAL AND LEGAL HISTORY.

Listed jointly with History.  
*Four semester hours.* Mr. Campbell.

#### 257a. SEMINAR IN AMERICAN ETHNIC POLITICS.

Not offered, 1972-73.



## 260a. POLITICS OF ENVIRONMENTAL MANAGEMENT.

Problems and processes in the public management of the natural environment: the public interest, natural resource policy, the planning process, allocation conflicts, grass-roots participation. Listed jointly with Geography.

*Four semester hours.*

Mr. Kaspersen.

## 261a. DEVELOPMENT ADMINISTRATION AND POLITICAL CHANGE.

Not offered, 1972-73.

## 262b. EXPORTING DEVELOPMENT: MODERNIZATION AS A POLITICAL THEORY.

Not offered, 1972-73.

## 263b. COMPARATIVE PERSPECTIVES ON THE GOVERNMENT AND POLITICS OF MODERN SOUTHEAST ASIA.

Not offered, 1972-73.

## 268a. SEMINAR: THE POLITICS OF REVOLUTION IN MODERN VIETNAM.

Not offered, 1972-73.

## 269b. SEMINAR: THE EFFECTS OF URBAN GROWTH ON POLITICAL BEHAVIOR.

Not offered, 1972-73.

## 272a. POLITICS OF CHINA AND JAPAN.

A comparative study of the contrasting paths of development taken by the Japanese and Chinese political systems. Among topics to receive special attention will be the conditions for revolution, the role of ideology, the political impacts of war and the strains of modernity.

*Four semester hours.*

Miss Enloe.

## 273a. SEMINAR: COMPARATIVE ETHNIC POLITICS.

This course will investigate the dynamics of political interaction in various multi-ethnic nations. Among those nations to be considered are South Africa, USSR, Britain, Malaysia and Nigeria. Particular focus will be on the ways in which ethnic group developments shape overall national political development.

*Four semester hours.*

Miss Enloe.

## 274b. POLITICS OF THE AMERICAN SOUTH.

Perhaps the most rapidly changing political landscape in the United States is in the South. There may even be a question whether "the South" is a distinct political entity in the 1970s. This course will raise that question and consider the ways in which the South stands apart from or merely reflects the larger national political system. The persistence of rural politics, the nature of the new Black politics, the rise of competitive parties will be among the topics analyzed.

*Four semester hours.*

Miss Enloe.

## 275b. SEMINAR: CITIZEN PARTICIPATION, ADVOCACY AND DISSENT.

The purpose of the course will be (1) to analyze major theories as to the causes and forms of participation in the politics (2) to examine our understanding of participation in the context of alternative models (e.g., pluralist welfare state, elitist power structure, technological state) of the polity and (3) to review the major means available to the powerless for utilizing participation as a means of creating power. Throughout, the course will establish an interplay between theoretical

discussions of the nature of participation and a series of comparative analyses of case studies of participation, including specific attention to advocacy and dissent. One mode to be employed in the latter cases will be to examine life histories of advocacy and dissent efforts and biographies of the major actors. Some of the urban decision-making games currently available for educational use will be considered as supplements to the course.

*Four semester hours.*

Mr. Kasperon, Mr. Goodman.

#### 276b. AMERICAN POLITICAL BEHAVIOR.

An empirical investigation of the variables that determine and condition the political attitudes and behavior of the American public. Special attention will be given to determinants of voting behavior, other forms of political participation, and public opinion, and emphasis will be placed on the effects of individual and aggregate behavior upon the functioning of the political system. The importance of political variables such as party identification, as well as social and psychological variables such as class and perception will be explored systematically. Prerequisite: Government 15a, 159, or permission.

*Four semester hours.*

Mrs. Krefetz.

#### 277b. SEMINAR: PROCESS OF URBANIZATION.

The purpose of this seminar is to integrate existing curricula in geography and political science by focussing on an interdisciplinary analysis of the consequences of urban growth for patterns of economic and political integration and participation. The seminar will examine generalizations in the context of both developed countries and underdeveloped countries, and largely by a data-oriented approach. Listed jointly with Geography.

*Four semester hours.*

Mr. Goodman, Mr. Peet.

#### 278b. THEORIES OF INTERNATIONAL POLITICS.

An examination of major theoretical approaches to the study of international politics. Various theories will be analyzed, and compared, within the framework of the modern international political system. Special emphasis will be placed upon power and its relationship to interaction among states. See instructor.

*Four semester hours.*

Mr. Smith.

#### 370a. POLITICAL SCIENCE RESEARCH: TECHNIQUES AND METHODS.

The major concern of the seminar will be with gaining an understanding of those social science techniques and methods which are most appropriate to conducting political science research. The course will begin with consideration of how one develops a research design, generates hypotheses, and builds theories. General topics to be discussed include causal thinking, the notion of controls, and the concepts of validity and reliability. Specific topics will include survey research, aggregate analysis, content analysis, simulation, correlation and regression analysis and factor analysis. In addition special attention will be given to problems involved with doing cross-cultural research and analyses through time. Open to graduate students and, with permission of the instructor, advanced undergraduates.

*Four semester hours.*

Mrs. Krefetz.

#### READING, RESEARCH AND THESIS COURSES.

##### 87. Sophomore-Junior Tutorial Program.

*Four semester hours.*

Staff.

##### 88. Directed Readings.

Staff.

|                                         |        |
|-----------------------------------------|--------|
| 89. Special Projects.                   | Staff. |
| 34. Reading in International Relations. | Staff. |
| 340. Thesis in International Relations. | Staff. |
| 35. Reading in Government and Politics. | Staff. |
| 350. Thesis in Government and Politics. | Staff. |

INTERDISCIPLINARY LISTINGS: FOR UNDERGRADUATE AND GRADUATE PROGRAMS IN THE DEPARTMENT, NOT EXCLUSIVE.

Economics 207b. INTERNATIONAL ECONOMICS.  
*Four semester hours.* Mr. Van Tassel.

Economics 327a. INTERNATIONAL TRADE THEORY. Not offered, 1972-73.

Geography 130b. THE GEOGRAPHY OF INTERNATIONAL POLITICS.  
*Four semester hours.* Mr. S. Cohen.

Geography 161b. GEOGRAPHY OF AMERICAN POVERTY.  
*Four semester hours.* Mr. Peet.

Geography 230a. POLITICAL GEOGRAPHY AND ITS SPACIAL CONSEQUENCES.  
*Four semester hours.* Mr. S. Cohen.

Geography 261a. URBAN GEOGRAPHY.  
*Four semester hours.* Mr. Karaska.

History 110a. THE ANCIENT CITY-STATE.  
*Four semester hours.* Mrs. Toepel.

History 110b. THE ANCIENT WORLD-STATE.  
*Four semester hours.* Mrs. Toepel.

History 208b. PROSEMINAR: TOTALITARIANISM.  
*Four semester hours.* Mr. Borg.

History 210a. "OLD EUROPE" AND THE ANCIENT REGIME, 1550-1789. Not offered, 1972-73.

History 210b. THE FRENCH REVOLUTION AND THE COMPARATIVE STUDY OF  
 REVOLUTIONS.  
*Four semester hours.* Mr. Lucas.

History 211b. TWENTIETH-CENTURY GERMANY.  
*Four semester hours.* Mr. Borg.

|                                                                                                         |                       |
|---------------------------------------------------------------------------------------------------------|-----------------------|
| History 218a. 18th CENTURY EUROPEAN INTELLECTUAL HISTORY.<br><i>Four semester hours.</i>                | Mr. Lucas.            |
| History 218b. 19th CENTURY EUROPEAN INTELLECTUAL HISTORY.<br><i>Four semester hours.</i>                | Mr. Lucas.            |
| History 246a. THE AMERICAN CITY                                                                         | Not offered, 1972-73. |
| History 249a. PROSEMINAR: SOCIAL REFORM IN THE UNITED STATES, 1785-1865.<br><i>Four semester hours.</i> | Mr. Barnett.          |
| History 281a. RUSSIA, 1825-1917.<br><i>Four semester hours.</i>                                         | Mr. VonLaue.          |
| History 282b. SOVIET RUSSIA, 1917-1960.<br><i>Four semester hours.</i>                                  | Mr. VonLaue.          |
| History 295a. PROSEMINAR: GHANA, THE NKRUMAH YEARS.<br><i>Four semester hours.</i>                      | Mr. VonLaue.          |
| Philosophy 181a. PROBLEMS IN SOCIAL PHILOSOPHY.<br><i>Four semester hours.</i>                          | Mr. Beck.             |
| Philosophy 18. HISTORY OF AMERICAN PHILOSOPHY.                                                          | Not offered, 1972-73. |
| Psychology 170a. INTRODUCTION TO SOCIAL PSYCHOLOGY.<br><i>Four semester hours.</i>                      | Mr. Sampson.          |
| Psychology 270a. ADVANCED TOPICS IN SOCIAL PSYCHOLOGY.                                                  | Not offered, 1972-73. |
| Sociology 242b. NATIONAL POWER AND DECISION MAKING.<br><i>Four semester hours.</i>                      | Mr. Ross.             |
| Sociology 244a. COMPARATIVE RACE AND ETHNIC RELATIONS.<br><i>Four semester hours.</i>                   | Mr. Gerber.           |
| Sociology 246a. SOCIAL PLANNING AND SOCIAL POLICY.<br><i>Four semester hours.</i>                       | Mr. Smith.            |
| Sociology 247a. URBAN COMMUNITIES.<br><i>Four semester hours.</i>                                       | Mr. Ross.             |
| Sociology 251b. POLITICAL AND SOCIAL THEORY.<br><i>Four semester hours.</i>                             | Mr. Ross.             |
| Sociology 253a. CONFLICT AND POLITICAL PROCESS IN IRELAND.<br><i>Four semester hours.</i>               | Ms. Fields.           |



# History

## DEPARTMENT FACULTY

Theodore H. Von Laue, Ph.D., *Jacob and Frances Hiatt Professor of European History, Department Chairman.*

Thomas C. Barrow, Ph.D., *Professor of American History*

George A. Billias, Ph.D., *Professor of American History*

Robert F. Campbell, Ph.D., *Professor of American History*

Daniel R. Borg, Ph.D., *Associate Professor of European History*

Richard B. Ford, Ph.D., *Associate Professor of African History*

Tamara K. Hareven, Ph.D., *Associate Professor of American History\**

William A. Koelsch, Ph.D., *Associate Professor of American History and Geography*

Paul Lucas, Ph.D., *Associate Professor of European History*

Marcus A. McCorison, M.S., *Lecturer in American History, Director of the American Antiquarian Society*

Redmond J. Barnett, Ph.D., *Visiting Assistant Professor of American History*

Phyllis C. Albert, Ph.D., *Visiting Lecturer in Jewish History*

Lori T. Toepel, Ph.D., *Visiting Lecturer in Ancient History*

## *Professors Emeriti in Residence:*

H. Donaldson Jordan, Ph.D., *Professor of English History, Emeritus*

Dwight E. Lee, Ph.D., *Jacob and Frances Hiatt Professor of European History, Emeritus*

\*On leave of absence, first semester, 1972-73.

## UNDERGRADUATE PROGRAM

*Undergraduate Major:* A student majoring in history takes 36 credit hours in history. Of the advanced (200 level) history courses in a major's program, at least eight hours must be in American and at least eight hours in non-American history. An additional twelve hours must be taken in economics, geography, government, psychology, or sociology (as related fields), and, for distribution purposes, 36 hours outside of these fields and of history.

The department recommends, though it does not require, that its undergraduate majors attain proficiency in at least one modern foreign language. Students planning to go on to graduate school are advised that demonstration of competence in one or more appropriate foreign languages is an important consideration in the admissions and fellowship award process of most leading universities. Students should also note that a knowledge of statistics and computer usage is highly desirable for advanced work in history.

*Special Programs:* Majors in history are encouraged to work out in consultation with their adviser a coherent program of study. Special attention should be paid to opportunities for interdisciplinary programs of study. A few examples follow:

French Studies  
English Studies  
Black Studies  
German Studies  
American Studies  
Urban Studies

Social History  
Intellectual History  
Economic History  
International Affairs  
Political History  
Historical Geography

Whatever special program the student chooses to pursue, the Department recommends that he submit to his adviser *in writing* a statement of the purpose of his program and a tentative list of courses. Such conscious planning is desired but not required of the major.

Students may extend the scope of their undergraduate programs through the offerings of cooperating colleges in Worcester, by independent study and research, and in the honors program in history. Further information about these matters is available from the department chairman or other members of the department.

## GRADUATE PROGRAM

The principal areas of graduate study are American, English, and modern European history. The department's affiliation with the American Antiquarian Society provides graduate students with the facilities of one of the country's finest research libraries, with over 750,000 volumes and many valuable manuscripts relating to early American history down to 1876. A dozen smaller libraries in Worcester, with combined holdings of over a million volumes, further extend the resources of the Clark Library, as does easy access to Boston, Providence, and New Haven area research facilities.

Course offerings on the graduate level distinguish between reading seminars ("colloquia") and research seminars (simply "seminars"). Whether in the Ph.D. or M.A. programs, students register for a research seminar or an individual research course in each semester of their formal residence, and all students take the Departmental Seminar (300). First and second year students take three courses each semester. Beyond the seminar requirement, students fill out their programs by taking colloquia, additional research seminars, independent study and research courses, and upper-division undergraduate history courses. The chairman initially assigns students to advisers, who help work out individual programs. With the permission of his adviser, a student is encouraged to take suitable courses in other departments.

*Master of Arts:* Students interested primarily in an M.A. degree and not in the doctorate are normally not admitted to graduate study. The M.A. is awarded to graduate students who have completed the course and one-year residence requirements, have written substantial research papers in two seminars or in individual research courses and have passed the required oral examination.

## DOCTOR OF PHILOSOPHY

The traditional doctoral program is designed to enable students to master the discipline of history through research, reading, and teaching. In addition to meeting the seminar and course requirements outlined above, a student who enters without an A.M. degree must spend at least three years in full-time residence at Clark, satisfy the language requirement, gain some experience in college teaching, pass a preliminary examination, and write a doctoral dissertation within seven years of matriculation.

*Language Requirement:* Students concentrating in American and British history must pass an examination in one foreign language: French, German, Spanish, or Russian. Those specializing in European history must pass examinations in two foreign languages, normally French and German. The chairman will designate an examiner in each language, who will determine whether the student is proficient enough to use the language as a research tool. An entering student must take a language examination as soon as it is offered in his first semester of residence, and must have passed this examination by the end of the first calendar year of residence in order to register for his second year. If required, the second language examination should be attempted early in the second year and must

be completed before the student registers for his third year. All language requirements must be satisfied before the preliminary oral examination can be scheduled.

*Teaching Experience:* Some teaching experience at the college level is a prerequisite of the Ph.D. degree. Students normally meet this requirement in their second or third years as teaching assistants.

*Fields:* Soon after arriving at Clark, the student, in cooperation with his adviser, defines four fields and prepares for them in whatever ways seem appropriate in view of his background and interests. Students specializing in American history normally offer the full scope of American history as two fields. Those concentrating in non-American history normally offer one American field (the dividing line between the two American fields generally falls at 1815). Any student may offer a non-historical subject as a field, usually within the social sciences, or prepare a field in social science theory and research techniques.

*Preliminary Examination:* One of the four fields is completed early through an oral examination, and the remaining three fields are tested in an oral examination, which must be attempted by the fall of the third year. The two oral examinations over the four fields constitute the "preliminary examination" required by the Graduate Board.

*Dissertation:* Students are advised to consider and explore dissertation topics during their years of residence and to choose a possible dissertation adviser as soon as possible. The process of writing a dissertation is outlined in a brochure, "Dissertation S.O.P.," which may be obtained from the Department secretary.

*Deadline for Completion:* All work required for the doctor's degree *must* be completed within a seven-year period after matriculation. In unusual circumstances only, such as involuntary military service or extended illness, the department may grant a specified extension of time.

Note: The course offerings below do not include a number of courses that may be taken through the Consortium of colleges in the Worcester area. The department recommends especially that students consider courses at Holy Cross in medieval, Renaissance and Reformation, and Latin American history.

Unless otherwise indicated, all courses carry four hours credit. The term *colloquium* indicates courses of limited enrollment that center on reading and discussion. The term *proseminar* indicates courses that are likewise limited and combine reading, discussion, and short reports. Finally, the term *seminar* indicates courses of limited enrollment that are organized around a major research paper.

## COURSES

NOTE: Freshmen and sophomores may take "200" courses without the consent of the instructors unless instructors decide otherwise (see course listings in registration materials). Students should realize, however, that "200" courses are given on an advanced level and that additional background reading may be desirable before or during the course.

**11a. PROSEMINAR: THE ANCIENT ORIGINS OF WESTERN CULTURE.**

Reading and discussion will concentrate on the Greek, Judeo-Christian and Roman elements of Western culture. Analytical techniques from the social sciences will be employed as an aid in developing an historical understanding.

**14a. HISTORY OF ASIA (to 1800).**

A survey of Asian history to the present, emphasizing India, China, and Japan.

Mr. Barrow.

**14b. HISTORY OF ASIA (1800-Present).**

Mr. Barrow.

**17a. PROSEMINAR: ORIGINS OF CONTEMPORARY AMERICAN THEMES.**

Readings and discussion dealing with issues of historical interpretation that relate to contemporary social and political problems.

Mr. Campbell.

**18b. PROSEMINAR: MAN AND ENVIRONMENT IN THE AMERICAN PAST.**

Not offered, 1972-73.

Readings and discussion relating to environmental cognition, policies and practices in America from earliest times to the present.

Mr. Koelsch.

**19a. TRADITIONAL AFRICA.**

The development of several pre-European civilizations in Africa, including those of Kush, the Sudanic Kingdoms, the Zanj, Zimbabwe, and Nok-Ife-Benin. An anthropological approach will be used to explore traditional African society and values.

Mr. Ford.

**19b. MODERN AFRICA.**

Not offered, 1972-73.

A study of differing views on European penetration of Africa, including an analysis of slavery and the slave trade, exploration, the missionary movement, imperialism, and independence, and concentrating on southern Africa and areas of English influence.

Mr. Ford.

**110a. THE ANCIENT CITY-STATE.**

A comparative study of the social, political, economic and cultural institutions of the ancient Greek and Roman city-state: the duties and privileges of citizenship; empire building and urban development; political theory and practice; death of the ideal through war and revolution. Readings will include both ancient and modern authors.

Mrs. Toepel.

**110b. THE ANCIENT WORLD-STATE.**

A comparative study of the social, political, economic and cultural institutions of the Greek and Roman world-states created by Alexander the Great and Augustus; the effect of the clash between the Hellenistic kingdoms and Rome; kingship in theory and practice; the management of empire and urbanish; the collapse of the world-states. Readings will include both ancient and modern authors.

Mrs. Toepel.

**124a. ENGLAND's "OLD REGIME".**

The structure and possible causes of the peculiarities of English state and society compared with continental Europe's from the late Middle Ages to about 1800.

Mr. Lucas.



201b. COLLOQUIUM: EUROPEAN SOCIAL HISTORY.

Not offered, 1972-73.

A critical examination of several conceptualizations of, and famous problems in, European social history from the Middle Ages to the twentieth century.

Mr. Lucas

208b. PROSEMINAR: TOTALITARIANISM.

A study of the nature of totalitarianism and of the origins, ideology, and operation of the German Nazi and Russian Soviet regimes.

Mr. Borg.

210a. "OLD EUROPE" AND THE *ANCIEN REGIME*, 1550-1789.

Not offered, 1972-73.

A study of the nature and impact of absolutism, mercantilism, early capitalism, and modern science upon "Old Europe" and the system of European states before the French Revolution.

Mr. Lucas.

210b. THE FRENCH REVOLUTION AND THE COMPARATIVE  
STUDY OF REVOLUTIONS.

An analysis of old and new ideas of revolution, including ritual, resistance, reactionary restoration vs. innovation; of the "democratic" revolution; of the psychology, sociology, and social psychology of revolutionary behavior; and of the relevance of the French Revolution to 20th-century issues.

Mr. Lucas.

211a. NINETEENTH CENTURY EUROPE.

Mr. Borg.

211b. TWENTIETH-CENTURY EUROPE.

Mr. Borg

215a. MODERN GERMANY.

An examination of the convulsive course of German history over the past century.

Mr. Borg.

218a. 18th-CENTURY EUROPEAN INTELLECTUAL HISTORY.

The "Enlightenment" and its critics: the scientific revolution, philosophical reformism, and early conservative romanticism. The emphasis is on methods of intellectual history as focused upon rival perceptions of man's psychological and social nature, history, and aesthetic and religious sensibilities.

Mr. Lucas.

218b. 19th-CENTURY EUROPEAN INTELLECTUAL HISTORY.

The elaboration of the "Enlightenment" by its heirs and critics. The emphasis remains the same as in 218a, but the focus shifts to an analysis of political and economic liberalism, social Darwinism, "utopian" and "scientific" socialism, positivism, nationalism and racism, old and new conservatisms, and the reassessment of the values and progress of European civilization.

Mr. Lucas.

231a. THE EXPANSION OF EUROPE, 1400-1600.

Not offered, 1972-73.

A survey of the origins and consequences of European expansion in its formative stages, with particular emphasis on English developments.

Mr. Barrow.

232b. ENGLAND IN AMERICA, 1600-1700.

Not offered, 1972-73.

An analysis of the process and consequences of the transplanted of Englishmen and English traditions to the new American environment.

Mr. Barrow.

**233a. ERA OF THE AMERICAN REVOLUTION.**

An analysis of American society in the pre-Revolutionary period with particular emphasis upon the ideological and political developments that led to the War of Independence. Mr. Billias.

**233b. FORMATION OF THE NEW NATION.**

An analysis of the American revolutionary experience, political theories in the making of the Federal Constitution, problems of the new government, and developments in the American political tradition through the Jeffersonian era. Mr. Billias.

**234a. THE UNITED STATES IN THE EARLY NINETEENTH CENTURY, 1810-1850.**

A critical examination of social and cultural changes usually described as individualistic and democratic. Mr. Barnett.

**234b. THE UNITED STATES IN THE LATE NINETEENTH CENTURY, 1850-1900.**

Emphasizing connections among changing physical environments, individual consciousness, and national integration. Mr. Barnett.

**235b. THE UNITED STATES IN THE 20th CENTURY.**

An analysis of the transformation of America into a modern society and of the tensions and problems of adjustment in this process. Mr. Campbell.

**238b. THE BLACK EXPERIENCE IN AMERICAN HISTORY.****240b. PROSEMINAR: THE AMERICAN CHARACTER.**

A study of the problem of national character and its historical validity. Mr. Barrow.

**241a. SEMINAR: HISTORY OF AMERICAN HIGHER EDUCATION.**

Not offered, 1972-73.  
The role of higher education in American life from 1636 to the present, with emphasis on the rise and character of the American university. Mr. Koelsch.

**242b. AMERICAN ECONOMIC HISTORY.**

Not offered, 1972-73.  
A survey of American economic development from colonial days to the present. Mr. Barrow.

**243a. AMERICAN DIPLOMATIC HISTORY, 1778-1941.**

Not offered, 1972-73.  
Mr. Hayden.

**244b. PROSEMINAR: CHILDHOOD, YOUTH, AND FAMILY IN AMERICAN HISTORY.**

Not offered, 1972-73.  
An interdisciplinary study of the changing attitudes of society toward childhood and the family, the varieties of family experience, and the problems of youth in historical perspective. Miss Hareven.

**245a. HISTORICAL GEOGRAPHY OF THE EASTERN UNITED STATES.**

Not offered, 1972-73.  
Studies in settlement and resource utilization on the eastern seaboard before 1860. Mr. Koelsch, Mr. Peet.

## 154 HISTORY

- 246a. THE AMERICAN CITY. Not offered, 1972-73.  
Major themes in the social and cultural development of American cities from colonial origins to the present. Focus on the process of urbanization. Comparison with European cities. Miss Hareven.
- 247b. PROSEMINAR: THE PROGRESSIVE ERA. Not offered, 1972-73.  
Mr. Campbell.
- 248b. PROSEMINAR: ETHNICITY, AND RACE IN AMERICAN HISTORY. Not offered, 1972-73.  
A comparative study. Miss Hareven.
- 249a. PROSEMINAR: SOCIAL REFORM IN THE UNITED STATES, 1785-1865.  
An investigation of movements creating prisons, other asylums, and utopian communities; developing new standards of education and morals; and attempting to emancipate members of oppressed social groups. Mr. Barnett.
- 250a. AMERICAN THOUGHT AND CULTURE: THE GREAT AWAKENING  
THROUGH THE CIVIL WAR.  
Emphasis on the shaping effects of the nineteenth-century experience on American ways of thinking. Mr. Koelsch.
- 251a. AMERICAN THOUGHT AND CULTURE: CIVIL WAR TO THE PRESENT. Mr. Campbell.
- 252b. HISTORICAL GEOGRAPHY: METHODS, TECHNIQUES AND SOURCES.  
Mr. Koelsch, Mr. Bowden.
- 256b. PROSEMINAR: AMERICAN CONSTITUTIONAL AND LEGAL HISTORY. Mr. Campbell.
- 261b. JEWISH SOCIAL AND INTELLECTUAL HISTORY SINCE 1870.  
The major social and intellectual movements from the rise of political anti-semitism to the present, studied against a background of Enlightenment and Emancipation. Topics will include integration and assimilation, denominationalism, migrations, nationalism and Zionism. Mrs. Albert.
- 274b. THE MODERN FAR EAST. Not offered, 1972-73.  
Primarily international relations in the region since 1895. Mr. Hayden.
- 280b. RUSSIA TO 1825. Not offered, 1972-73.  
A survey of the rise of the Russian Empire, with particular emphasis on the 17th and 18th centuries. Mr. Von Laue.
- 281a. RUSSIA, 1825-1917.  
An outline of Russian development from the early nineteenth century to the collapse of the tsarist regime. The emphasis lies on political history with occasional exploration of literary and economic history as well. Mr. Von Laue.

282b. SOVIET RUSSIA, 1917-1960.

An outline of Soviet development from the Bolshevik revolution to the present, with special emphasis on the formation of the Soviet regime and the rise and fall of Stalinism. Mr. Von Laue.

283a. RUSSIA IN 1917.

Not offered, 1972-73.

A study of Russia in the year of revolution. Investigation will center on the weakness of the Provisional Government and the causes of the Bolshevik success. Discussion of sources (in English) and a term paper required. Mr. Von Laue.

290a. PROSEMINAR: PERSPECTIVES OF WESTERNIZATION, 1890-1960. Not offered, 1972-73.  
A discussion of the scholarly literature on modernization and westernization, with detailed analysis of select issues. Mr. Von Laue.

294a. HISTORY OF GHANA.

Not offered, 1972-73.

The interaction of western and African cultures traced through the history of the Gold Coast and Ghana, with special emphasis on the 20th century. Mr. Von Laue.

295a. PROSEMINAR: GHANA, THE NKRUMAH YEARS.

Mr. Von Laue.

296a. PROSEMINAR: PRE-EUROPEAN IN AFRICA.

Not offered, 1972-73.

A consideration of economic, social, and political developments in Africa prior to the arrival of Europeans. Prerequisite: 19a, 19b, or equivalent. Mr. Ford.

297b. PROSEMINAR: MODERN AFRICA.

Focus on the changes which European policies and values have created in Africa. Prerequisite: 19a, 19b, or equivalent. Mr. Ford.

88. SPECIAL PROJECTS.

Undergraduates, normally juniors and seniors, may construct a reading or research course with an instructor of their choosing. The consent of the instructor *must* be obtained in advance. Variable credit.

299. DEPARTMENTAL HONORS.

Staff.

300. DEPARTMENTAL SEMINAR.

A survey of some major schools of historical study and of their methods, in search of a suitable historical approach to the contemporary scene. Mr. Von Laue.

303. SOCIAL SCIENCE SEMINAR.

TTT Staff.

305. CURRICULUM DEVELOPMENT IN THE TEACHING OF SOCIAL STUDIES

TTT Staff.

328a. SEMINAR: ORIGIN AND NATURE OF DEMOCRACY IN PRE-REVOLUTIONARY AMERICA.

Mr. Barrow.



- 330b. SEMINAR: RISE OF POLITICAL PARTIES IN THE EARLY AMERICAN REPUBLIC.  
Ideology, Aims, and Practices of the Federalists and Jeffersonian Republicans. Mr. Billias.
- 338a. SEMINAR: AMERICAN SOCIAL HISTORY. Not offered, 1972-73.  
Focus on the problem of social change and continuity in American society. Emphasis on the city and the family. Miss Hareven.
- 339a. SEMINAR: AMERICAN URBAN HISTORY. Not offered, 1972-73.  
The focus falls on the American adjustment to the urban, industrial experience. Research will utilize original sources in Worcester and other New England towns. Miss Hareven.
- 342a. COLLOQUIUM: THE LITERATURE OF AMERICAN HISTORY (to 1815). Mr. Billias.
- 343b. COLLOQUIUM: THE LITERATURE OF AMERICAN HISTORY (since 1815). Mr. Barnett.
381. STUDIES IN MEDIEVAL EUROPEAN HISTORY. Mr. Barrow.
382. STUDIES IN EARLY MODERN EUROPEAN HISTORY. Mr. Lucas, Mr. Borg.
383. STUDIES IN MODERN EUROPEAN HISTORY. Mr. Borg, Mr. Von Laue.
384. STUDIES IN MODERN BRITISH HISTORY. Staff.
385. STUDIES IN RUSSIAN HISTORY. Mr. Von Laue.
388. STUDIES IN AFRICAN HISTORY. Mr. Ford, Mr. Von Laue.
390. STUDIES IN EARLY AMERICAN HISTORY. Mr. Barrow.
391. STUDIES IN 18th-CENTURY AMERICAN HISTORY. Mr. Billias.
392. STUDIES IN 19th-CENTURY AMERICAN HISTORY. Mr. Koelsch, Mr. Barnett.
393. STUDIES IN RECENT AMERICAN HISTORY. Miss Hareven.
394. STUDIES IN RECENT AMERICAN HISTORY. Mr. Campbell.
395. STUDIES IN AMERICAN INTELLECTUAL HISTORY. Mr. Beck.
397. STUDIES IN DIPLOMATIC HISTORY AND INTERNATIONAL RELATIONS. Mr. Hayden.
398. STUDIES IN COMPARATIVE HISTORY. Mr. Von Laue.
400. THESIS RESEARCH. Staff.

# Linguistics

## ENGLISH 198. INTRODUCTION TO LINGUISTICS.

Fall, 1972.

## ENGLISH 199. COMPARATIVE AND HISTORICAL LINGUISTICS.

Spring, 1973.

*Courses in Linguistics Offered at the College of the Holy Cross and Open to Students from Clark University:* English 198 is devoted to the theory and methodology of descriptive linguistics. The course deals with the nature and function of language, the relation between speech and writing, phonology, morphology, syntax, lexicology, the sociocultural setting of language, the contact of linguistic systems, and the problems of "correctness." English 199 examines the theory and methodology of comparative and historical linguistics. It focuses on linguistic geography, linguistic borrowing, the causes of linguistic change, the comparative method and reconstruction, and problems in analyzing languages with and without a literary tradition. In both courses, emphasis is placed upon the dynamics of systems analysis.

*Three semester hours each semester.*

Mr. Macris.

## 115. MAN AND LANGUAGE.

An introduction to the analysis of the nature and function of human language and its role in the life of individuals and societies. The approach is interdisciplinary, with attention to the points of view of philology, contemporary linguistics, anthropology, psychology and philosophy. The lectures focus on such questions as: What is language? What is the relation between language and thought? To what extent does our language determine how we perceive the world? Why and how do languages change? What other functions does language serve besides communication? Why do we not have a world language? How have linguists achieved an objective, scientific analysis of linguistic systems? What are the limitations of such a science?

The course is designed for the general student who wishes to know more about the nature of the uniquely and universally human institution of language, and for the student or teacher of English or foreign languages who is interested in the light which linguistic science can throw upon the relations between his field and other areas of life and knowledge.

First semester: lectures. Second semester: a seminar in which the members of the group report in depth on problems of their choosing. Offered in alternate years. Consent of the instructor required.

*Three semester hours each semester.*

Mr. Reid.

## 260a. LINGUISTICS AND LANGUAGE LEARNING.

An exploration of various fields of linguistic study from the point of view of their relevance to foreign language learning. Intended to meet the needs of two classes of students: (1) prospective foreign language teachers who already have advanced mastery of their language (since that is not a concern of this course); and (2) other students with a more general interest in the nature of language, whose primary orientation may be toward related problems in, for example, psycholinguistics or sociolinguistics.

Approaching language as *behavior* and as *system*, the course directs attention to the levels ranging from the culture-system to the system of the language as a whole, and finally to its sub-systems — lexical, grammatical and phonological.

Consent of the instructor required.

*Four semester hours.*

Mr. Reid.

Psychology 228b. PSYCHOLOGY OF LANGUAGE.

See description under psychology.

Mr. Kaplan.

English 250. HISTORY OF THE ENGLISH LANGUAGE.

See description under English.

Mr. Macris.

English 255b. SEMINAR: OLD ENGLISH.

See description under English.

Not offered, 1972-73.

Mr. Macris.

English 260b. SEMINAR: MODERN AMERICAN ENGLISH.

See description under English.

Mr. Macris.

English 261b. SEMINAR: LINGUISTIC APPROACHES TO LITERATURE. Not offered, 1972-73.

See description under English.

Mr. Macris.

## Management

### THE PROGRAM

The Department limits itself to a graduate program leading to the M.B.A. degree. The program is small and extremely flexible, designed to allow the participation of students interested in a wide range of organizations, both profit and non-profit.

The program has unique features which should be evaluated by the prospective student in the light of his interests and preferences. First, only the most important topics in the study of management are included: marketing, capital investment analysis, information systems, behavioral science, and organizational change. These topics are applied to a wide variety of organizations. Second, to complete the graduate program, the student must create a part of his program in conjunction with the faculty, administration, and other students. The Department regularly schedules courses and seminars only in the above five fields. Thus, workshops, special courses and other forms of educational projects must be continually created by the students. Experts from both academic and practicing backgrounds are brought into the program temporarily to meet the changing demands. Third, the Department is not solely committed to the study of business organizations. The faculty believes the study of management applies to all organizations, non-profit as well as profit. Consequently, the theoretical core of each field of study is emphasized, and descriptive institutional material is used to particularize the core. The mix of students in the program, including current and future managers of educational, health, religious, government and business organizations, forces the faculty to focus on the universal principles of managing. Fourth, all departmental courses and seminars are scheduled in the late afternoons and evenings. These hours do not mean it is an evening program for part-time students, with a separate program in the daytime for full-time students. It is one program, with both part and full-time students attending the same courses, seminars and special projects. This aspect of the program contributes a unique atmosphere in which students learn from each other's wealth of differing practical and academic experience.

A graduate program of 30 semester-hours is required, which can be completed in one academic year. Prior to graduate study, a basic knowledge in 12 subject areas must be demonstrated. These prerequisites are not waived on the basis of previous academic or other experiences because of the great variability in coursework and memory span of students. Although inconvenient for some, the required demonstration of knowledge results in a better graduate education for all. While individual

study, particularly a review and the taking of waiver examinations is urged, the Department offers the 12 subjects as half-semester courses for those who would prefer them.

#### ADMISSION TO THE PROGRAM

All undergraduate majors are given equal weight in the admission decision. Persons interested in the program must request a Bulletin from the Department. Those wishing to apply should complete the accompanying application form and return to the Department with the \$10. fee. When all supporting documents have been received, the application is considered by the admissions committee, which meets monthly through the academic year. Admission is for September or February.

#### TUITION

\$1,300. per semester, or \$88. per semester hour credit.

## Mathematics

#### DEPARTMENT FACULTY

John F. Kennison, Ph.D., *Professor of Mathematics, Department Chairman*

Zalman Rubinstein, Ph.D., *Professor of Mathematics \**

Norman Sondak, Dr. of Eng's., *Professor (Affiliate) of Mathematics*

Robert W. Kilmoyer, Jr., Ph.D., *Associate Professor of Mathematics \*\**

Bhama Srinivasan, Ph.D., *Associate Professor of Mathematics*

John S. Stubbe, Ph.D., *Associate Professor of Mathematics*

Stephen Baron, Ph.D., *Assistant Professor of Mathematics*

Stanley J. Poreda, Jr., Ph.D., *Assistant Professor of Mathematics*

Herb Silverman, Ph.D., *Assistant Professor of Mathematics*

George S. Shapiro, A.M., *Instructor in Mathematics*

\*On leave of absence, 1972-73.

\*\*On leave of absence, second semester, 1972-73.

#### UNDERGRADUATE PROGRAM

##### A. For the General Student:

The geometry course (Math 124) and the math models course (Math 100) offer different perspectives of mathematics that should interest both the specialist and non-specialist. The geometry course illustrates the mathematical approach in the context of visual concepts. The models course explores the role of mathematics as a language that is used and abused in many applications to the business, military and economic worlds. These courses are not overly demanding from a technical viewpoint.

The calculus courses (Math 12, 13, 15, 16) are technically demanding but present a powerful and elegant subject. Math 12 is the standard first year calculus course while Math 16 is the honors calculus. Math 15 gives a novel approach to this subject, relating to Probability Theory. The calculus courses are sectioned and tend to be relatively small. Freshmen may start in the Fall with 12a, 12b, (second semester's work), 15, 16, or 13 (second year of calculus). Students who feel rusty may first register for



the Math Clinic and Tutorial (Math 10). This course has no scheduled class times but employs conferences and is designed to meet individual needs.

#### *B. Special Technical Needs:*

In addition to Math 10 and the calculus courses the department offers certain courses that will be technically useful. Our probability and statistics courses (Math 117 and 118) are fairly comprehensive and important for the social sciences. Math 150 is important for math education. Math 170 and Math 245 are of use to physical science majors. Courses such as Math 135 entail useful experience on the computer.

Students may avail themselves of the math faculty for projects that require mathematics (Math 88, 89 and 200). Math 100 seems to introduce the student to the possibility of such projects. Non-math majors with a special interest in mathematics are invited to "minor" in mathematics particularly by enrolling in Math 200 when they are ready to pursue a fairly large project. The department intends to provide individual attention and special evaluations.

#### *C. The Math Major:*

The major is designed to meet the needs of students who are interested in either pure or applied mathematics or in math education or in computing science. Although demanding, it is flexible and can accommodate prospective actuaries, teachers, computer scientists, students planning on graduate work in mathematics or the social sciences or in certain professional schools. The requirements are:

(I.) Ten semester courses in mathematics at or beyond the level of Math 12. [Up to four semester courses in computer science beyond 111 may be substituted.] At least two semester courses on the 200-level (or the equivalent – see below) must be included. Math 13 and 113a should normally be taken in the sophomore year.

(II.) Three semester courses from one of the following areas: biology, chemistry, computer science, economics, geography, geology, philosophy, physics, psychology, sociology.

(III.) At least 36 semester hours from other than Group A courses and certain courses in computer science, economics, geography and psychology which depend heavily on mathematics. In each case please consult with the department.

The purpose of the 200-level requirement is to insure that a major's program has depth or emphasis. For students interested in math education this requirement can be met by taking the education module and the math education course (Math 150). For students taking other similar courses through the Consortium, please consult with the department to see if the 200-level requirement is met.

### GRADUATE PROGRAM

The department offers courses leading to the degrees of Master of Arts and Doctor of Philosophy.

The requirements for the M.A.\* are as follows: (1) four courses on the 300 level, except that, with the consent of the department, a student may substitute two courses below the 300 level in place of one beyond; (2) a Master's thesis; and (3) an oral examination.

A student working toward the Ph.D. degree and electing to omit the M.A. thesis and M.A. oral examination will be recommended for the M.A. degree upon successful completion of the Ph.D. Preliminary Examination.

The requirements for the Ph.D.\*, in addition to the general requirements of the Graduate School, are as follows: There are four "tracks" by which a student may be recommended for admission to Ph.D. candidacy: (1) Written examination; (2) Oral examination; (3) Special project; (4) Waiver (in

extraordinary cases). The decision as to which track shall apply is made by the advisor in consultation with the student. The advisor will submit the choice of track to the department for final approval. Students should discuss this matter with their advisors by November of their second year. (Students entering with a Master's degree should discuss this immediately.) Note: New courses and graduate instructorships are subject to final approval.

In all cases except the waiver, a committee of at least three will be appointed by the chairman. If the examination or project is satisfactory, the committee will advise the department, which will make the recommendation to the Graduate School.

The language requirement will be considered to have been fulfilled if the candidate can demonstrate sufficient linguistic ability to carry on effective research in his or her field. The department's decision will depend heavily upon the recommendation of the candidate's advisor.

\*All candidates for the M.A. and Ph.D. degrees in Mathematics will be required to serve as teaching assistants or as assistants in the Computing Center as part of the work for their degrees.

## COURSES

### 11a. INTRODUCTION TO MATHEMATICS.

Not offered, 1972-73.

Intended for the general student, the course treats topics in the foundations of mathematics and its role in today's world.

### 10. MATH CLINIC AND TUTORIAL.

Individual conferences, diagnostic tests, programmed exercises and projects are used to develop mathematical skills, concepts and confidence. This course does not involve classes but relies on a one-to-one approach.

*From one to four semester hours.*

Staff.

### 12. CALCULUS.

Introduction to differential and integral calculus of one variable; sequences and series; essential for further study in mathematics as well as for the study of applications in the natural sciences. Not open to students who have taken Math 15 or 16.

*Four semester hours each semester.*

Staff.

### 13. INTERMEDIATE CALCULUS.

This course assumes the knowledge of one variable calculus and will deal with functions of several variables. Partial derivatives, multiple integrals, line and surface integrals and their applications will be among the topics covered. Prerequisite: Mathematics 12.

*Four semester hours each semester.*

Mr. Poreda.

### 15. PROBABILITY AND CALCULUS FOR THE SOCIAL AND LIFE SCIENCES.

A course designed to acquaint the student with the foundations of probability and calculus. Emphasis will be on their applications, uses and abuses. Essential to those who want a solid background for questioning statistical assumptions. Not open for credit to students who have taken Math 12 or 16.

*Four semester hours.*

Mr. Silverman.

## 16. HONORS CALCULUS.

A three semester calculus sequence designed for math majors; participation during January study period will be required.

*Twelve semester hours for the year.*

Mr. Shapiro.

## 88. DIRECTED READING IN MATHEMATICS.

*From one to four semester hours.*

Staff.

## 89. SPECIAL PROJECTS IN MATHEMATICS.

*From one to four semester hours.*

Staff.

## 100. MATHEMATICAL MODELS.

The method of analyzing various situations by analogy with mathematical models is explored. The course includes criticism and discussion of models constructed by students and experiments with mathematics as a language.

*Four semester hours.*

Mr. Kennison.

## 113a. LINEAR ALGEBRA.

Systems of linear equations, matrices and determinants, vector spaces, linear transformations, eigenvalues and canonical forms.

*Four semester hours.*

Mr. Kilmoyer.

## 115b. INTRODUCTION TO GROUP THEORY.

An introduction to fundamental concepts such as sets, mappings, equivalence relations, rings, integral domains, fields, and groups.

*Four semester hours.*

Staff.

## 117. PROBABILITY AND STATISTICS. [Formerly Math 117a and 118b]

Basic topics from probability theory and statistics. Applications to the natural and social sciences are considered. Prerequisite: Math 12 or consent of the instructor.

*Four semester hours each semester.*

Mr. Poreda.

## 124a. INTRODUCTION TO GEOMETRY. [Formerly Math 125b]

Topics from projective geometry, non-Euclidean geometry, foundations of Euclidean geometry and topology. Prerequisite: Equivalent of Mathematics 11.

*Four semester hours.*

Mr. Baron.

## 125b. THEORY OF NUMBERS. [Formerly Math 124a]

A study of some properties of divisibility, prime numbers, congruences and residues. Prerequisite: Equivalent of Mathematics 11.

*Four semester hours.*

Mr. Baron.

## 135. PATTERN RECOGNITION.

The development of computerized methods for recognizing, in a larger collection, a sub-set of "points" which has a "group" property; for determining groups having certain properties in common regardless of shape and size; and for calculating the most probable properties of a partially constructed (or partially hidden) group. The 19 by 19 Japanese Go Board will be used as a model.

*Four semester hours.*

Mr. Stubbe.

**140b. INTRODUCTION TO MATHEMATICAL LOGIC.**

A course designed to show the student how to construct a formal system and proofs within it. Topics to be covered include propositional and predicate calculus.

*Four semester hours.*

Staff.

**150. SEMINAR IN MATHEMATICAL METHODS AND MATERIALS.**

The purpose of this course is two fold: (1) to acquaint the student with various methods of approach for theories on teaching math on the secondary school level, and (2) to give the student a pre-student-teaching experience. While conducting mini-courses in math with South High School and the Alternative School, the seminar discusses articles that are concerned with teaching math, the relationship of the theories to the practice, the problems that are encountered within the mini-courses, and methods of teaching math. Various field trips and guest speakers will be included.

*Three semester hours.*

Ms. Silvia.

**153a. ACTUARIAL SCIENCE.**

Not offered, 1972-73.

This course will deal with the mathematics of finance and its application. Interest, annuities, valuations, depreciation, mortality tables and life insurance are among the areas that will be covered. Prerequisite: Mathematics 11 or the equivalent.

**154b. INTRODUCTION TO LINEAR PROGRAMMING AND GAME THEORY.**

Not offered, 1972-73.

An introductory course developing the basic mathematical tools of linear programming and game theory and investigating their applications to business, science and the military. Computer application will also be discussed. Prerequisite: Mathematics 113a.

**170a. FINITE REFLECTION GROUPS.**

The objective of this course is the classification of finite groups generated by reflections in a finite dimensional Euclidean vector space. Included will be such topics as finite subgroups of the orthogonal group in low dimensions, crystallographic groups, fundamental regions, root systems, and generators and relations.

*Four semester hours each semester.*

Mr. Kilmoyer.

**200. COMPREHENSIVE TUTORIAL.**

This course is intended for students pursuing advanced projects that involve mathematics. These projects might arise from mathematics or from some other discipline. Signature required.

*Variable credit.*

Staff.

**212a. NUMERICAL ANALYSIS.**

Not offered, 1972-73.

Calculus of finite differences, introduction to the theory of interpolation, error analysis, direct and iterative methods for solving equations and systems of equations. Prerequisite: Mathematics 13.

**214. MODERN ANALYSIS.**

Topological and metric methods are introduced and studied. These generalize and explain many ideas first encountered in calculus. These methods will be applied to study differentiation, integration and convergence, among other topics, in greater depth. Prerequisite: Mathematics 13 and 113a or consent of the instructor.

*Four semester hours each semester.*

Mr. Shapiro.



## 215. MODERN ALGEBRA.

Intended for the prospective graduate student in mathematics. It introduces the theory of groups, rings, integral domain, fields, and related topics. Prerequisite: Mathematics 113 or consent of the instructor.

*Four semester hours each semester.*

Ms. Srinivasan.

## 220. COLLOQUIUM IN PURE RESEARCH.

This course is offered for students wishing to obtain a general view of the current research in mathematics as done by the staff. Prerequisite: Good mathematical background and consent of the chairman.

*One to two semester hours.*

Staff.

## 221b. CALCULUS OF VARIATIONS.

Not offered, 1972-73.

Euler's equations, canonical forms, classical examples, isoparametric problems, variational principles, Hamilton-Jacobi theory. Corequisite: Mathematics 13.

## 244a. DIFFERENTIAL EQUATIONS.

Not offered, 1972-73.

Topics will include methods of solution and qualitative theory of first order and linear ordinary differential equations. Prerequisite: Mathematics 113a.

## 245b. APPLIED MATHEMATICS.

This course covers topics from advanced calculus which are useful for applications to the sciences.

*Three to four semester hours each semester.*

Staff.

## 290. TOPICS IN ANALYSIS.

Content will be changed from year to year.

*Three to four semester hours each semester.*

Staff.

## 291. TOPICS IN ALGEBRA.

Content will be changed from year to year.

*Three to four semester hours each semester.*

Staff.

## 292. TOPICS IN TOPOLOGY.

Content will be changed from year to year.

*Three to four semester hours each semester.*

Staff.

## 293. TOPICS IN GEOMETRY.

Content will be changed from year to year.

*Three to four semester hours each semester.*

Staff.

## 298. HONORS I.

*Three to four semester hours each semester.*

Staff.

## 299. HONORS II.

*Three to four semester hours each semester.*

Staff.

300b. SETS AND TOPOLOGY.

Not offered, 1972-73.

The foundations of set theory and the relationship of various fundamental axioms, such as Zorn's lemma and the Axiom of Choice. Point-set topology as far as the Hahn-Mazurkiewicz Theorem.

316. FUNCTIONS OF A COMPLEX VARIABLE.

Analytic functions, line integrals, conformal mapping. Riemann surfaces. Prerequisite: Mathematics 214 or consent of the instructor.

*Three to four semester hours each semester.*

Mr. Silverman.

318. FUNCTIONS OF A REAL VARIABLE.

The real number system, topology, measure theory and related topics. Signature required.

*Three to four semester hours each semester.*

Staff.

321. ALGEBRAIC TOPOLOGY.

Introduction to algebraic topology including fibrations and coverings, homotopy and homology. The relation with category theory will be emphasized. Prerequisites: Mathematics 215 and 318 or consent of the instructor.

*Three to four semester hours each semester.*

Mr. Baron.

323. UNIFORM SPACES.

Not offered, 1972-73.

Elementary theory, function spaces and the exponential law, mappings into polyhedra, compactifications, fine spaces, dimension theory. Prerequisite: Mathematics 318 or consent of the instructor.

325. ADVANCED MODERN ALGEBRA.

Galois theory, group theory, Wedderburn structure theorems for rings and linear algebras, introduction to algebraic number fields. Prerequisite: Mathematics 215.

*Three to four semester hours each semester.*

Ms. Srinivasan.

326. SELECTED TOPICS IN COMPLEX ANALYSIS.

Not offered, 1972-73.

Topics selected from the theory of univalent and multivalent functions, geometric function theory, zeros of polynomials and extremal polynomials. Prerequisites: Mathematics 316 or consent of the instructor.

327. FUNCTIONAL ANALYSIS.

*Three to four semester hours each semester.*

Staff.

330. MASTER'S THESIS.

Staff.

333. TOPOLOGICAL FUNCTION SPACES.

Not offered, 1972-73.

Various topologies for sets of functions are studied and their properties determined. Emphasis on the exponential laws. Ascoli-Arzelà theorems, and applications to point-set topology. Prerequisites: Mathematics 318 or consent of the instructor.

335. SELECTED TOPICS IN ALGEBRA.

Not offered, 1972-73.

Prerequisites: Mathematics 325 or consent of the instructor.

341. DIFFERENTIAL EQUATIONS. Not offered, 1972-73.  
 Ordinary differential equations, theory and techniques of solutions. Partial differential equations. Fourier transform, distributions and their applications.
- 358b. CATEGORY THEORY.  
 Introduction to the basics of category theory.  
*Three to four semester hours each semester.* Mr. Baron.
376. REPRESENTATION THEORY OF FINITE GROUPS. Not offered, 1972-73.  
 Prerequisite: Mathematics 325 and consent of the instructor.
381. SEMINAR IN COMPLEX VARIABLES.  
*Three to four semester hours each semester.* Staff.
- 382a. SEMINAR IN ABSTRACT ANALYSIS.  
*Three to four semester hours each semester.* Staff.
383. SEMINAR IN ALGEBRA.  
*Three to four semester hours each semester.* Staff.
384. SEMINAR IN CATEGORY THEORY.  
*Three to four semester hours each semester.* Staff.
390. READINGS IN MATHEMATICS.  
 Reading of the mathematical literature related to the student's research program.  
*Three to four semester hours each semester.* Staff.
391. RESEARCH IN MATHEMATICS.  
 Direction of the Ph.D. dissertation.  
*Three to four semester hours each semester.* Staff.

## Philosophy

### DEPARTMENT FACULTY

Robert N. Beck, Ph.D., *Professor of Philosophy, Chairman*  
 John H. Tietz, *Visiting Associate Professor of Philosophy*  
 Gilbert S. Markle, Ph.D., *Associate Professor of Philosophy*\*  
 Gary E. Overvold, Ph.D., *Associate Professor of Philosophy*  
 Walter E. Wright, Ph.D., *Assistant Professor of Philosophy*\*  
 Robert Hollinger, Ph.D., *Visiting Assistant Professor of Philosophy*

\*On leave of absence, 1972-73.

## UNDERGRADUATE PROGRAM

The department offers courses to students who wish to broaden their perspective and trace relations among the various fields of knowledge and to students who wish to major in philosophy.

The major consists of at least 8 semester courses in philosophy which should include either Phil. 11b or Phil. 18b, two courses from the Phil. 120 series, and a seminar. An additional 6 semester courses in related fields is required. These are determined according to the student's special interest. Course programs for majors require approval of the departmental chairman.

The outside field requirement in philosophy of 36 semester hours requires specific course determination. Courses credited toward this requirement must be individually approved by the departmental chairman as part of the major's program.

It is expected that majors take at least their upper-level courses in philosophy on a graded basis.

## COURSES

### 11b. INTRODUCTION TO LOGIC.

Logic as philosophy and practice. An introduction to the meaning of logical reasoning with a study of its principles and methods. An investigation of the philosophical presuppositions of logic.

*Four semester hours.*

Mr. Beck, Mr. Overvold.

### 12a. PROBLEMS OF PHILOSOPHY.

Nature and method of philosophy. Application of philosophical method to contemporary personal and social problems. Detailed analysis of some typical problems in various fields of philosophy.

*Four semester hours.*

Mr. Beck.

### 12b. PROBLEMS OF PHILOSOPHY.

Not offered, 1972-73.

Philosophy 120 series is organized in four semester-courses, I, II, III and IV.

### 121a. HISTORY OF ANCIENT PHILOSOPHY I.

Movements of philosophical thought from their origins with the early Greeks through Plato and Aristotle. Prerequisite: one semester course in philosophy.

*Four semester hours.*

### 122b. HELLENISTIC AND MEDIEVAL PHILOSOPHY II.

Not offered, 1972-73.

Developments in Hellenistic and medieval philosophy from Epicureanism, Stoicism, Skepticism, and Neo-Platonism through Augustine, Aquinas, and William of Occam to the attack on scholasticism.

Prerequisite: Philosophy 121 or 12.

*Four semester hours.*

### 123b. HISTORY OF MODERN PHILOSOPHY III.

Major thinkers and philosophical movements from the beginnings of the modern period in Descartes through Kant. The two great trends in modern thought – Continental Rationalism and British Empiricism – will be examined in particular regard to their implications for, and effects upon, our contemporary view of the world. Prerequisite: one semester course in philosophy or History 10.

*Four semester hours.*

### 124a. HISTORY OF RECENT PHILOSOPHY IV.

An investigation of the major types of philosophical thought distinctive to recent philosophy: Pragmatism, Logical Positivism, Ordinary Language Philosophy, Existentialism, and Phenomenology.



Emphasis upon each as a coherent perspective upon experience with a focus on the style and methodology of each view. Prerequisite: Philosophy 123b.

*Four semester hours.*

Mr. Overvold.

### 13a. PROBLEMS OF ETHICS.

Consideration of important ethical theories to acquaint students with the problems and scope of ethics and to aid him in the formulation of an ethical outlook. Open to juniors and seniors.

*Four semester hours.*

Mr. Beck.

### 13b. SOCIAL PHILOSOPHY.

Principles underlying social structure and functions. Examination of the goals, purposes, norms and ideals of social process, and the relation of that process to the individual good. Open to juniors and seniors.

*Four semester hours.*

Mr. Beck.

### 131a. PERSONAL VALUES.

Exploration of philosophical approaches to the fundamental human value problems such as truthfulness, sexual integrity, love, violence, war, and death. The connection between personal value choices and ethical theories will be studied. Limited course, preference to freshmen.

*Four semester hours.*

Mr. Tietz.

### 14a. KIERKEGAARD AND NIETZSCHE.

Investigation of the roots of contemporary existential thought in the nineteenth century through the analysis of major writings by Søren Kierkegaard and Friedrich Nietzsche. Emphasis on their doctrines of knowledge, existence and man. Open to juniors and seniors. Prerequisite: one semester course in philosophy.

*Four semester hours.*

Mr. Overvold.

### 14b. NINETEENTH AND EARLY TWENTIETH-CENTURY GERMAN PHILOSOPHY.

Not offered, 1972-73.

Trends in philosophy during this period considered as a background for understanding recent philosophy. Philosophers to be studied include Fichte, Hegel, Schopenhauer, Nietzsche, Marx, Engels and Comte. Prerequisite: Philosophy 123b.

*Four semester hours.*

### 140a. KANT.

Not offered, 1972-73.

Immanuel Kant viewed as a synthesis of the traditions of Continental Rationalism and British Empiricism. Prerequisite: two semester courses in philosophy, including Philosophy 123b.

*Four semester hours.*

### 15a. PHILOSOPHY OF RELIGION.

The nature of religion as revealed by the examination of representative forms of religious experience. Emphasis is placed on the effect of contemporary knowledge on the understanding of the religious dimension. Open to juniors and seniors. Prerequisite: one semester course in philosophy.

*Four semester hours.*

**16a. ESTHETICS.**

The nature of art, the characteristics of esthetic experience, and the relation of art to the human enterprise as a whole. Special reference is made to representative figures in contemporary philosophy such as Santayana, Veron, Dewey, Weitz, Macdonald, Bosanquet, Langer, Hume, and T.H. Greene. Open to juniors and seniors. Prerequisite: one semester course in philosophy.

*Four semester hours.*

**16b. METAPHYSICS.**

Not offered, 1972-73.

Clarification of the nature of metaphysical thinking and views of representative philosophers on the nature of space, time, causality, matter, force, self-identity, mind, body, and freedom. Prerequisite: two semester courses in philosophy.

*Four semester hours.*

Mr. Overvold.

**161b. THEORY OF VALUE.**

Not offered, 1972-73.

Definitions of "value"; psychological and social conditions of different values; function of value judgments; nature of standards and their role in criticism — in art, science, morals. Foundations of the normative disciplines, i.e., logic, ethics, aesthetics. Prerequisite: two semester courses in philosophy including a course in one of the following areas: logic, ethics or esthetics.

*Four semester hours.*

**17a. PHILOSOPHY OF SCIENCE I.**

An introduction to certain traditional problems of epistemology and metaphysics, cast into the terms and context of 20th-century science. The questionable "ontological status" of theories is the principal point of focus. Prerequisite: semester course in philosophy.

*Four semester hours.*

Mr. Hollinger.

**17b. PHILOSOPHY OF SCIENCE II.**

A more advanced treatment of selected problems in scientific explanation. One such problem is that of "artificial intelligence" in machines. Does the traditional problem of mind and body become any less onerous when viewed within the developing context of Cybernetics and information theory? Some symbolic logic is required. Prerequisite: two semester courses in *both* philosophy and a natural science. Philosophy 17 recommended.

*Four semester hours.*

**18a. HISTORY OF AMERICAN PHILOSOPHY.**

Survey of important philosophical ideas in America with emphasis on their relationship to American experience. Prerequisite: one semester course in philosophy.

*Four semester hours.*

Mr. Beck.

**18b. SYMBOLIC LOGIC.**

Advanced work in symbolic logic, with stress on principles of deductive rigor. Some consideration of philosophical implications of logic. Topics to be discussed include: sentential calculus, predicate calculus, Tarski's definition of truth, selected metatheorems, and Henkin's completeness proof for the first order predicate calculus. Prerequisite: permission of instructor.

*Four semester hours.*

19a. EPISTEMOLOGY.

Survey of the major topics in theory of knowledge, including study of significant alternative positions. Prerequisite: two semester courses in philosophy.

*Four semester hours.*

Mr. Tietz.

19b. EXISTENTIALISM.

A study of the major philosophers in twentieth-century Existentialism with a focus on their redefinition of man in terms of his "lived world" and his nonrational capacities. Prerequisite: two semester courses in philosophy.

*Four semester hours.*

201-4. SEMINARS IN PHILOSOPHY.

Advanced studies of topics of central importance to philosophy, such as the philosophy of Whitehead, Spinoza, Plato, Hegel, the nature of the *a priori*, the problem of justice, the nature of truth, phenomenology, the philosophy of mind, the philosophy of law. Offerings vary each semester. Prerequisite: four semester courses in philosophy or permission of instructor.

*Four semester hours each semester.*

Staff.

Education 290b. PHILOSOPHY OF EDUCATION.

Description offered in the department statement under Education.

Mr. Beck.

Research in Philosophy

99. READINGS IN PHILOSOPHY.

Group discussion, individual tutorials and independent research in areas of philosophy. The independent research involves a topic of the student's choice within the designated area. Prerequisite: where appropriate, completion of regular department course in the area; two semester courses in philosophy; and instructor's permission. Offerings vary each semester.

*Normally, four semester hours.*

Staff.

Fall Semester, 1972-73

Metaphysics  
Social Philosophy  
Philosophy of Science  
Ancient Philosophy  
Philosophy of Religion  
Ethics

Spring Semester, 1972-73

To be announced.

203a. SURSEMINAR: TEACHING IN PHILOSOPHY.

Prerequisite: permission of instructor.

*Four semester hours.*

**101-1b. SURSEMINAR: RESEARCH AND WRITING IN PHILOSOPHY.**

Offered the first half of second semester.

Prerequisite: permission of instructor.

*Two semester hours.*

Mr. Beck.

**101-11b. SURSEMINAR: PHILOSOPHICAL JOURNALS.**Offered the second  
half of second semester.

Prerequisite: permission of instructor.

*Two semester hours.*

Mr. Beck.

**102a. SURSEMINAR: READINGS IN PHILOSOPHY IN GERMAN.**

Not offered, 1972-73.

Selected texts in German philosophy studied in the original language. Prerequisite: permission of instructor.

*Normally, three semester hours.***299. HONORS IN PHILOSOPHY.**

Advanced individual study of philosophic problems. Honors includes the preparation of an acceptable thesis and a comprehensive examination. Prerequisite: consent of the department.

*Normally, eight semester hours.*

Staff.

# Physics

**DEPARTMENT FACULTY**Roy S. Anderson, Ph.D., *Professor of Physics*John A. Davies, Ph.D., *Associate Professor of Physics*Harvey A. Gould, Ph.D., *Associate Professor of Physics*Christoph Hohenemser, Ph.D., *Associate Professor of Physics*Roger P. Kohin, Ph.D., *Associate Professor of Physics*Joseph P. McEvoy, Ph.D., *Associate Professor of Physics*Albert M. Gottlieb, Ph.D., *Lecturer and Research Associate*

The Department of Physics provides undergraduate and graduate courses which can be combined to meet a variety of student interests and needs. Formal courses (excluding readings and special topics) fall into six classes, as given below.

**TYPES OF COURSES OFFERED**

(1) *Courses for the non-scientist.* These require high school algebra and geometry. They are designed to acquaint the student with the nature of scientific inquiry and to inform the student of the impact of science in the contemporary world. Included in this class are 1a and 1b.

(2) *Core undergraduate courses.* This is a sequence of three one year courses emphasizing phenomena of physics. The first year requires no calculus, and the second and third year are taught at the level of elementary calculus. The core curriculum is designed to meet the needs of general physics majors and Technology and Man majors. Included in the sequence are Physics 11, 111 and 161.

(3) *Core-tutorials.* A sequence of three undergraduate courses that parallels the core courses in subject matter, but is specifically intended for pre-professional science majors. Students will attend the lectures of the core courses, but a substantial part of the work will be conducted in weekly tutorials.



In these, the subject matter will be explored in greater depth and more rigor than the lectures. Students must be prepared to work independently.

(4) *Laboratories*. A sequence of five semesters of laboratory designed to meet the needs of all types of students. Included are Physics 19, 119a, b, and 219b. Laboratory work beyond these courses may be taken in the form of research participation as Physics 231.

(5) *Advanced undergraduate courses*. Courses beyond the three year core-sequence that are at the beginning graduate level. They are designed for undergraduate science students, particularly physics majors, who intend to enter graduate school. Included are Physics 201, 205 and 209a. Courses are normally given in alternate years.

(6) *Graduate courses*. Graduate courses fall into two classes, basic and advanced. The basic graduate courses, required for the Ph.D. are Physics 301, 305, 309a and 310. Advanced courses include Physics 311, 312, 313 and 314. Most graduate courses are given in alternate years.

## UNDERGRADUATE MAJOR OPTIONS

### A. *General Physics*

This is a major intended for students who wish to study physics solely as a liberal art and who do not intend to enter graduate school. It allows maximum opportunity for electives in other fields. It is suitable as a preparation for teaching, business and a variety of professional schools. The requirements for this major are Physics 11, 19, 111, 161, Mathematics 13, and 12 semester hours of electives from science, mathematics and computer science. A student may replace a required course with an appropriate more advanced course with the approval of the department undergraduate advisor.

### B. *Technology and Man – Physics Option*

This is a major intended for students who are interested in careers that deal with the interface between science and society. Details of the program are given elsewhere in this catalog, under the title Technology and Man. Students choosing the Physics option under the program are advised to select Physics 11, 19, 111 and 161.

### C. *Physics*

This is a standard, pre-professional program intended for those who plan graduate study in physics or an allied science. The program requirements are 8 semester courses in physics beyond Physics 12 and 19 (normally including 112, 162 and 119a.b.). In addition, the student is urged to take one year of chemistry and one additional year of mathematics at an advanced level. An entering student with a sound background in physics is encouraged to take a placement examination at the beginning of the academic year. Satisfactory performance will admit the student to Physics 111 or 112, and Physics 119a. This will permit completion of the requirements for the major by the end of the junior year, and leaves the senior year open for independent study and/or honors.

## UNDERGRADUATE HONORS

A qualified undergraduate in any of the major options above is encouraged to participate in the Physics Honors Program. During the junior and senior year the Honors student conducts an experimental or theoretical research project under the guidance of a faculty member. This work is submitted to the Department as an Honors Thesis. Recommendation for a degree with Honors in Physics is determined by the quality of the thesis and the performance of the student on a comprehensive examination in physics. An Honors candidate must maintain an average of B- in physics and mathematics courses.

## GRADUATE PROGRAM

The Department of Physics offers the M.A. and Ph.D. degrees in Physics and jointly with the Department of Chemistry a Ph.D. in Chemical Physics. Departmental research is concentrated in the experimental and theoretical study of condensed matter with emphasis on phase transitions.

At entrance, graduate students are given a placement examination which tests their knowledge of undergraduate physics. A student failing this examination may be required to take a remedial program before entering fully on the graduate program, and may be asked to fulfill the requirements of the M.A. degree before proceeding to the Ph.D.

To receive the Ph.D. the student must satisfy the University residence and course requirements, pass with B or better the basic graduate courses Physics 301, 305, 309a and 310, and three semesters of Physics 303. To qualify for Ph.D. research, the student must pass four oral examinations in the subject matter of the basic graduate courses, and an additional comprehensive oral examination. The student must also pass at least a semester graduate course in a subject other than physics, demonstrate literacy in a foreign language and computer programming, and complete a dissertation based on an original piece of research. Students entering with advanced standing and transferrable credit are encouraged to demonstrate their proficiency in core graduate courses through examination.

To receive the M.A. the student must satisfy the University residence and course requirements, pass four semesters of the basic graduate courses, Physics 301, 305, 309a and 310 and one semester of Physics 303. He must also complete a thesis based on an original piece of research.

Those interested in further information on research opportunities in the Department should request the brochure "The Graduate Program and Research in Physics at Clark." Those desiring more detail on graduate requirements and their timing should request a copy of "The Physics Graduate Student Handbook." Both are available from the Chairman of the Department.

Applicants for admission should know that various forms of financial aid are available, and that the Department considers provision of such aid an important responsibility. Application forms for admission and financial aid may be requested from the Chairman of the Physics Department.

## COURSES

### 1a. EXPLORING THE UNIVERSE.

A one semester introduction to astronomy for the non-scientist. For details, see listing under ASTRONOMY.

*Four semester hours.*

Mr. Anderson.

### 1b. PHYSICS FOR ARTISTS, POETS AND PHILOSOPHERS.

A one semester introduction to the history, methodology and achievements of physics with an appreciation of its social and cultural influences. The course will stress modern ideas of space and time, Einstein's theory of relativity, current theories of cosmology, and quantum theory. Mathematical tools necessary are high school algebra and geometry. Three class meetings and one laboratory per week. Open to freshmen.

*Four semester hours.*

Mr. Gould.

### 11. INTRODUCTORY PHYSICS.

A non-traditional, introductory course designed for students majoring in science. Stresses simplicity and self-consistency of physical models and mathematical laws in explaining a variety of phenomena. Topics will include statistical physics, relativity and quantum physics in addition to mechanics, electricity and magnetism. Although calculus is not a prerequisite, Physics II is a rigorous and

challenging preparation for advance courses in the sciences. Together with Physics 19 Laboratory (see below) satisfies the requirements for majors in Physics, Biology, Chemistry and Technology and Man. Three 50-minute lectures per week plus a discussion once a week. Enrollment is not limited.

*Four semester hours each semester.*

Mr. McEvoy.

## 12. INTRODUCTORY PHYSICS.

An introductory course for science majors and others who desire a more mathematically complete approach than given in Physics 11. The subject matter and general lectures are the same as in Physics 11. A substantial part of the work will be conducted in tutorials, in which the mathematical basis of the lectures is explored. The student should be prepared to work independently. Three lectures and one tutorial per week. Co-requisite: Mathematics 12.

*Four semester hours each semester.*

Mr. Kohin and Mr. McEvoy.

## 19. INTRODUCTORY LABORATORY.

A laboratory course designed to accompany Physics 11. Emphasis on physical measurements, techniques and the ideas of applied mathematics needed to interpret them. One meeting per week. Co-requisite: Physics 11 or 12.

*One semester hour each semester.*

Mr. Hohenemser.

## 111. INTERMEDIATE PHYSICS.

A second course in physics, designed to follow Physics 11. It is intended for the general student interested in the concepts, methods and applications of physics, and satisfies the requirements of the Program on Technology and Man. The course presumes mathematics at the level of elementary calculus, and will develop other mathematical tools as needed. Topics covered are electricity and magnetism, wave and optical phenomena, thermodynamics and kinetic theory. Applications to man-technology problems. Open to freshmen with consent of instructor. Co-requisite Mathematics 12.

*Four semester hours each semester.*

Mr. Gould.

## 112. INTERMEDIATE PHYSICS.

A second course in physics for science majors, designed to follow Physics 12. The subject matter and general lectures are the same as Physics 111. Over half of the work is conducted in relation to tutorials in which the subject matter is explored in greater depth. The student should be prepared to work independently. Co-requisite, Mathematics 13, Pre-requisite Physics 12.

*Four semester hours each semester.*

Staff.

## 119a. ELECTRONICS LABORATORY.

An introductory laboratory course in electronics, the goal of which is to build and understand several simple circuits using discrete as well as integrated solid state elements. The course will begin with fundamentals of AC and DC circuit theory, and the use of basic test instruments such as oscilloscopes. Special emphasis will be given to logic circuitry and operational amplifier techniques. The course may replace Physics 19 as an introductory laboratory for those who are qualified. Two laboratories per week. Open to freshmen with consent of instructor.

*Four semester hours.*

Mr. Gottlieb.

## 119b. PHYSICAL INSTRUMENTATION LABORATORY.

An introduction to modern physical research instrumentation. The course will involve each student in one or more projects. The student will be expected to design, build and assemble the experimental



apparatus, using his background in electronics. Departmental facilities such as the machine shop and the electronics stockroom will be available. The course will emphasize measurements on fundamental particles, such as protons, muons, gamma rays, electrons and positrons. One lecture and two laboratory periods per week. Pre-requisite: Physics 119a or equivalent.

*Four semester hours.*

Mr. Hohenemser and Mr. Gottlieb.

#### 161. ATOMIC AND NUCLEAR PHYSICS.

Not offered, 1972-73.

A third course in physics, designed to follow Physics 111. It is intended for the general student who wishes to learn in detail about the structure of atoms and nuclei. To achieve its goal, the course will include an introduction to quantum mechanics. The course presumes mathematics at the level of elementary calculus, and will develop other mathematical tools as needed. Applications to the problems of energy technology and environmental radiation will be given. Pre-requisite: Physics 111, Mathematics 12.

*Four semester hours each semester.*

Mr. Hohenemser.

#### 162. ATOMIC AND NUCLEAR PHYSICS.

A third course in physics for science majors, designed to follow Physics 112. The subject matter and general lectures are the same as Physics 161. Over half of the work will be conducted in relation to tutorials in which the subject matter will be explored in greater depth. The student should be prepared to work independently. Pre-requisite: Physics 112, Mathematics 13.

*Four semester hours each semester.*

Mr. Anderson.

#### 188. INDEPENDENT PROJECTS.

*Variable credit.*

Staff.

#### 201. CLASSICAL THEORY OF FIELDS.

A course designed to prepare the physics major for graduate work in physics. Lectures are the same as in Physics 301, but evaluation is separate. Pre-requisite: Physics 112, 162.

*Four semester hours each semester.*

Mr. Davies.

#### 205. QUANTUM MECHANICS.

A course designed to prepare the physics major for graduate work in physics. Lectures are the same as in Physics 305, but evaluation is separate. Pre-requisite: Physics 112, 162.

*Four semester hours each semester.*

Mr. Kohin.

#### 209a. STATISTICAL MECHANICS.

A course designed to prepare the physics major for graduate work in physics. Lectures are the same as in Physics 309a, but evaluation is separate. Pre-requisite: Physics 112, 162.

*Four semester hours.*

Mr. Gould.

#### 219b. PHYSICAL INSTRUMENTATION LABORATORY.

An introduction to modern physical research instrumentation. The course is the same as Physics 119b, except that interpretation of experiments must be at the advanced undergraduate or beginning graduate level. Undergraduates who have completed Physics 119b may register for 219b.

*Four semester hours.*

Mr. Hohenemser and Mr. Gottlieb.



## 230. DIRECTED READINGS IN PHYSICS.

Directed readings in physics to provide for special needs not covered in regular courses.

*Variable credit.*

Staff.

## 231. SPECIAL PROJECTS IN EXPERIMENTAL PHYSICS.

Independent laboratory projects done under the guidance of a faculty advisor.

*Variable credit.*

Staff.

## 232. SPECIAL PROJECTS IN THEORETICAL PHYSICS.

Independent projects in theoretical physics done under the guidance of a faculty advisor.

*Variable credit.*

Staff.

## 301. CLASSICAL THEORY OF FIELDS.

An integrated year course in classical mechanics and electrodynamics. Topics covered include variational principle, canonical transformations, Hamilton-Jacobi theory, special theory of relativity, Lorentz transformations and the Lorentz group, the stress tensor and continuous media, Maxwell's equations, electromagnetic potentials, boundary value problems, radiation theory, collisions between charged particles, self-interaction, and the phenomenological properties of plasmas, superconductors and ferromagnets.

*Four semester hours each semester.*

Mr. Davies.

## 303. RESEARCH APPRENTICESHIP.

Direct participation in each of the experimental and theoretical research groups of the department. The student spends approximately one half semester in each research group. Ph.D. students should enroll in this course for three semesters, M.A. students for one semester.

*Four semester hours each semester.*

Staff.

## 305. QUANTUM MECHANICS.

A comprehensive introduction to non-relativistic quantum mechanics. Topics include the superposition principle, linear vector spaces, the Schrödinger and Heisenberg pictures, symmetries, angular momentum, scattering theory, perturbation theory. Applications to atomic, nuclear and solid state physics.

*Four semester hours each semester.*

Mr. Kohin.

## 309a. STATISTICAL MECHANICS.

Not offered in 1972-73.

A one semester course in thermodynamics, statistical mechanics and kinetic theory at an advanced level. Topics covered include ensemble theory, density matrix, ideal gases, Fermi and Bose distributions, Debye theory, non-ideal gases, molecular field theory, Boltzmann equation, Onsager relations.

*Four semester hours.*

Mr. Gould.

## 310a. SOLID STATE PHYSICS.

Not offered in 1972-73.

A one semester introduction to the quantum theory of solids. Topics covered include Born-Oppenheimer approximation, lattice dynamics, phonon spectra, electron structure of metals, insulators, and semi-conductors, transport theory.

*Four semester hours.*

Mr. Hohenemser.

**311. ADVANCED QUANTUM MECHANICS.**

Not offered in 1972-73.

A one semester course in relativistic quantum mechanics with an emphasis on perturbation techniques. Applications to quantum electrodynamics. Renormalization theory. Pre-requisite: Physics 305 or equivalent.

*Four semester hours.*

Mr. Gould.

**312. APPLICATION OF GROUP THEORY TO PHYSICS**

Not offered in 1972-73.

Representation theory for finite groups. Applications to crystallographic point groups. Representations of continuous compact groups; the rotation group. The Wigner-Eckart theorem and selection rules. The permutation group and its application to a system of identical particles. Classification of states of a multi-electron atom.

*Four semester hours.*

Mr. Davies.

**313. LOW TEMPERATURE PHYSICS.**

Not offered in 1972-73.

Phenomenological and microscopic theories of liquid helium — three and four, and type I and type II superconductivity. Experimental techniques at low temperature.

*Four semester hours.*

Mr. McEvoy.

**314. THEORY OF MANY PARTICLE SYSTEMS.**

Not offered in 1972-73.

The equilibrium and transport properties of many body systems are studied at zero and non-zero temperatures using the formalism of thermodynamic Green's functions. Applications are made to the electron gas, the degenerate Bose and Fermi gas, and superconductivity.

*Four semester hours.*

Mr. Gould.

**315. CRITICAL PHENOMENA.**

Landau theory of second order phase transitions, Ornstein-Zernicke theory, and calculation of critical exponents. Review of recent experimental work — near magnetic, gas-liquid, ferroelectric, superconducting and structural phase transitions.

*Four semester hours.*

Mr. Gould.

**325. RESEARCH SEMINAR.**

A student participation seminar in current research problems.

*One semester hour each semester.*

Staff.

**330. TOPICS IN EXPERIMENTAL PHYSICS.**

A specific topic in experimental physics is considered at the research level. Topics are selected on the basis of current interest.

*Variable credit.*

Staff.

**335. TOPICS IN THEORETICAL PHYSICS.**

A specific topic in theoretical physics is considered at the research level. Topics are selected on the basis of current interest.

*Variable credit.*

Staff.

**340. COLLOQUIUM.**

Weekly invited lectures on research topics of current interest.

*No credit.*

Staff.

## 350. RESEARCH.

*Variable credit.*

Staff.

## ASTRONOMY.

A single introductory course is available at the introductory level. More advanced courses related to astronomy are listed under Courses in Physics.

## 1a. EXPLORING THE UNIVERSE.

A one-semester introduction specifically designed for the non-science student who wishes to know what science is about, but who does not wish to master the detail found in the typical introductory science survey course. Astronomy is an interdisciplinary field involving physics, mathematics, chemistry, geology and even philosophy. The purpose of this introduction to astronomy is to convey how scientific ideas are developed through the application of experimental knowledge. The use of mathematics is minimized; when mathematics is employed it is at the level of high school algebra. Approximately the first half of the semester is devoted to consideration of the solar system. The second half of the semester concerns the stars and their life cycles, star clusters and galaxies. Theories of the origins of the solar system, of the Universe and of life are discussed. Observing sessions include use of telescopes in the University Observatory. Several experiments are performed on the basis of astronomical observations. There are field trips to nearby observatories and planetariums.

*Four semester hours.*

Mr. R. Anderson.

# Psychology

## DEPARTMENT FACULTY

Seymour Wapner, Ph.D., *G. Stanley Hall Professor of Genetic Psychology, Department Chairman*

Robert W. Baker, Ph.D., *Professor of Psychology*

Roger Bibace, Ph.D., *Professor of Psychology*

Tamara Dembo, Ph.D., *Professor of Psychology, Emeritus*

Bernard Kaplan, Ph.D., *Professor of Psychology*

Morton Wiener, Ph.D., *Professor of Psychology*

Leonard E. Cirillo, Ph.D., *Associate Professor of Psychology*

Joseph H. deRivera, Ph.D., *Associate Professor of Psychology*

James D. Laird, Ph.D., *Associate Professor of Psychology*

Donald G. Stein, Ph.D., *Associate Professor of Psychology*

David A. Stevens, Ph.D., *Associate Professor of Psychology*

Nicholas S. Thompson, Ph.D., *Associate Professor of Psychology and Adjunct Associate Professor of Biology*

Ina C. Uzgiris, Ph.D., *Associate Professor of Psychology*

Jacques Vonèche, Ph.D., *Associate Professor of Psychology*

Neil O. Rankin, Ph.D., *Assistant Professor of Psychology*

John Whiteside, Ph.D., *Assistant Professor of Psychology*

Thomas Z. Cassel, Ph.D., *Visiting Assistant Professor of Psychology*

Bernadette Nelson-Shapiro, Ph.D., *Visiting Assistant Professor of Psychology*

**Adjunct Faculty**

Edward E. Sampson, Ph.D., *Professor of Sociology and Adjunct Professor of Psychology*

David Zern, Ph.D., *Assistant Professor of Education and Adjunct Assistant Professor of Psychology*

**Affiliated Staff**

Harold Goodglass, Ph.D., *Affiliate Professor of Psychology*

Donald M. Broverman, Ph.D., *Affiliate Professor of Psychology*

William Vogel, Ph.D., *Affiliate Professor of Psychology*

Robert A. Ciottone, Ph.D., *Visiting Lecturer in Psychology*

George E. Gardner, M.D., Ph.D., *Visiting Lecturer in Psychology*

David J. Meyerson, M.D., *Visiting Lecturer in Psychology*

Malcolm Sills, M.D., *Visiting Lecturer in Psychology*

Peter Wolff, M.D., *Visiting Lecturer in Psychology*

Nelson M. Butters, Ph.D., *Affiliate Research Associate in Psychology*

Ward J. Cromer, Ph.D., *Affiliate Research Associate in Psychology*

Shannon T. Devoe, Ph.D., *Affiliate Research Associate in Psychology*

Polly Deweese, M.S., *Social Work Consultant to the Psychological Services Center*

David Finkel, Ph.D., *Affiliate in Clinical Training*

Lawrence Peterson, Ph.D., *Affiliate in Clinical Training*

Victor H. Pentlauge, M.D., *Psychiatry Consultant to the Psychological Services Center*

**UNDERGRADUATE PROGRAM**

The department offers courses for students majoring in psychology, majors in allied fields and students wishing an orientation to the field of psychology as part of their general education.

Psychology 11a or 11b is a prerequisite to all other psychology courses except Psychology 12a or 12b. The major in psychology consists of at least 40 semester hours, in either psychology courses or courses designated as related to the major by the Department. At least 20 semester hours must be in psychology courses, and at least 10 semester hours must be in courses related to the major. A list of courses related to the major is available in the Departmental Office. Majors are required to take Psychology 11a or 11b and a minimum of one laboratory course (Psychology 201b, 203b, 204a, 205a, 206b, 210b, 223b, 236a). Psychology 160b, 260a, or their equivalent is a prerequisite for laboratory courses. In addition, at least 36 semester hours of a major's program must be selected from courses not approved as related and outside the following fields: All biology, education, linguistics, philosophy, psychology and sociology courses; and selected courses from economics, geography, government, and mathematics.

Honors work in psychology is available to seniors who have demonstrated high scholastic achievement and the ability to work independently in scholarly situations. Students in the Honors Program carry out an independent research project under the sponsorship of a faculty member. This research provides the basis for a thesis, which upon completion is presented and defended by the student before an examining committee composed of faculty members. On the basis of the report of the examining committee and the student's adviser for the project, the Department may recommend to the College Board that the student be awarded departmental honors at one of the following levels: Highest Honors, High Honors, or Honors in Psychology.



Application for admission into the Psychology Honors Program is normally made during the second semester of the junior year, and no later than May 1 of that year. Six hours of Psychology 296 (Directed Research) and/or Psychology 297 (Directed Reading), taken during the junior year, is prerequisite for admission to the program. Students who have not fulfilled this prerequisite, but who can show evidence of the ability to do independent research, can petition the Department for waiver of the prerequisite.

Students preparing for graduate work are encouraged to take more than one laboratory course, and should also obtain a reading knowledge of French, German or Russian.

## GRADUATE PROGRAM

The department admits to graduate work only those students who plan to enroll in the Ph.D. program on a full-time basis. A Master of Arts degree, based on an experimental thesis, ordinarily completed within the first two years of graduate work, is a requirement for admission to candidacy for the Ph.D. degree. In addition, there is the requirement that every graduate student participate in the Teaching Apprenticeship Program of the department. Credit hours are not ordinarily assigned to graduate courses.

*Master of Arts:* The customary program consists of five-year (ten-semester) courses – including experimental methods in psychology (301a), statistical methods (302) and seven additional semester courses – supplemented by the writing of a thesis in the area of special interest.

*Doctor of Philosophy:* The student is required to pass with distinction five courses during the first year of graduate study and a minimum of four courses during the second year. The departmental language requirement must be met by a knowledge of French, German or Russian. He is required, normally at the end of the second year, through written papers and oral examination, to demonstrate his competence in psychology, including an area of specialization. In addition, the student is required to demonstrate his ability to conduct independent research as evidenced by the presentation of an acceptable dissertation. Research for the dissertation should normally be completed during the fourth year at the University; however, the length of the program will vary depending upon individual circumstances. At a final oral examination a student is required to defend his dissertation and to show his competence in the general field of psychology and in his area of specialization.

The overall aim of the graduate program is to provide the student with a general, integrated background covering the various areas of psychology. Within this emphasis there are several specialized programs available and these are described briefly below.

*Clinical Psychology Program.* The department offers a four-year A.P.A.-approved program in clinical psychology leading to the degree of Doctor of Philosophy. Beyond the standards of proficiency in the general field of psychology expected of all students, the student in the Clinical Program will be required to demonstrate special mastery in the understanding of concepts in the clinical area and in the use of clinical methods. One year of internship is included in this four-year program. Provision is made for a wide variety of practical experiences in cooperating institutions, clinics and agencies. There are over 20 institutions and agencies in Worcester, Boston, Providence and surrounding areas which cooperate in providing such practicum and research facilities. In addition to the one-year internship, all students in the Clinical Program obtain a variety of practicum experiences in the Clark University Psychological Services Center throughout their enrollment in the graduate program. For further information, write to the director of the program: *Dr. Morton Wiener*.

There is a Psychological Services Center on campus which is operated as part of the doctoral training program in Clinical Psychology and which offers some psychological services to students who wish help in academic or personal adjustment. Such services are limited and, where necessary, students will be referred to other appropriate University or community resources.

*Post-doctoral training in clinical psychology* is available. It aims to provide opportunities for clinical psychologists to develop further their research and clinical skills. Facilities of the Department and other agencies are utilized.

*Developmental Psychology Program.* This program is designed to train students in the comparative and experimental analysis of behavioral development. It emphasizes not only the study of human development over a wide age range, but also stresses the application of developmental principles, concepts and methods to problems of general psychology, psychopathology, social psychology, etc. For further information, write to the director of the program: *Dr. Bernard Kaplan*.

*The Experimental Psychology Program.* Training in experimental psychology is available in a variety of areas, including perception, human learning and cognition, physiological, comparative animal behavior and ethology. While students often specialize in one area, they are encouraged to develop competence in several areas. Students interested in neuropsychology, psychopharmacology, electrophysiology, and neurochemistry have been able to utilize for research and training not only our own extensive laboratories, but also other specialized facilities in such institutions as Worcester State Hospital, Boston Veterans Administration Hospital, and several non-profit research laboratories in the area. Since our experimental programs are rather broad, those interested in more information should write to the Department Chairman, *Dr. Seymour Wapner*.

*Rehabilitation Research Training Program.* In conjunction with all other areas of specialization, rehabilitation research training is available. This training is designed to prepare students for investigation of psychological problems as they occur in everyday life. Emphasis on development of novel techniques and concepts is a main feature of the training. An integral part of the program is an apprenticeship-practicum during which the various phases of research in real-life settings are examined under the guidance of a staff member. This program is especially pertinent to those who are interested in social-emotional and value problems of handicapped and non-handicapped people. For further information, write to the director of the program: *Dr. Tamara Dembo*.

*Social Psychology Program.* This program aims to develop an understanding of social behavior and person development. This goal is furthered by a number of different approaches (ranging from ethological to phenomenological) applied to problems such as the development of self-knowledge, interpersonal-relations, and group dynamics. For further information write to the director of the program, *Dr. Joseph de Rivera*.

*Interdisciplinary Work.* The Department recognizes the interest of many students to undertake study and research which cuts across disciplines or areas that now exist. Interdisciplinary activity by students is generally feasible at Clark inasmuch as various members of the Psychology faculty are now, or recently have been, engaged in activities with faculty of such departments as Biology, Education, English, Geography, History and Sociology.

*Financial Aid.* In addition to University scholarships, fellowships, teaching assistantships, and stipends, the Department has available such forms of financial support as United States Public Health Service and Rehabilitation Services Administration training stipends, Veterans Administration assistantships and stipends, NDEA and NSF Traineeships, and research assistantships.

## THE HEINZ WERNER INSTITUTE OF DEVELOPMENTAL PSYCHOLOGY

Associated with the Department is the Heinz Werner Institute of Developmental Psychology, which has three aims: first, to integrate various research programs dealing with developmental problems; second, to bring to Clark University scholars, teachers, and research workers from disciplines for which developmental problems are pertinent such as anthropology, biology, and certain areas of medicine; third, to train research workers on post-doctoral levels in the comparative-developmental approach to behavior. Information concerning post-doctoral work at the Institute may be obtained by writing to Dr. Bernard Kaplan.

Applicants for graduate study in psychology, who are interested in securing more detailed information concerning the Department and its programs, are urged to write to the Department for two brochures: "Information for Graduate Students" and "A Statement Concerning Educational Philosophy and Atmosphere".

## COURSES

## 11a.b. GENERAL PSYCHOLOGY.

Introduction to the principles of human behavior.

*Four semester hours.*

Mr. Vogel.

## 12a.b. PSYCHOANALYTIC INTERPRETATION OF BEHAVIOR.

Psychoanalytic contributions to the understanding of human behavior and conflicts.

*Four semester hours.*

Mr. Bibace.

## 13b. HUMANISTIC PSYCHOLOGY.

Not offered, 1972-73.

A survey of various humanistic approaches to understanding human behavior, including those of Maslow, Rogers, the Existential Psychologists, Laing, and Jourard. The focus will be on understanding the sources of such theorizing, the merits of such approaches relative to other theoretical approaches, and on the relationships of humanistic perspectives to related phenomena such as sensitivity training, Eastern "psychological" religions, etc. A number of psychology department staff and graduate students as well as people from outside the department and the University will take part.

*Four semester hours.*

To be announced.

## 103a.b. ABNORMAL PERSONALITY.

Examination of the issues involved in the definition, description, and explanation of deviant behavior.

Prerequisite: 172a,b.

*Four semester hours.*

a. Mr. Finkel; b. Mr. Baker.

## 130a. PSYCHOLOGY OF LEARNING.

Methods and findings in the study of learning are discussed, with emphasis on their relation to theories of learning. Selected controversial issues are examined.

*Four semester hours.*

Mr. Stevens.

## 138b. NORMAL AND PATHOLOGICAL THOUGHT PROCESSES.

An examination of the experimental and theoretical literature dealing with the contrast and similarities between normal and pathological thinking. Will study such issues as perception, imagination, concept formation, language and information processing as displayed in normals and in people in various categories of psychopathology. Prerequisite: Psych. 172 and 103.

*Four semester hours.*

Mr. Finkel.



**150a. INTRODUCTION TO CHILD PSYCHOLOGY: PHYSICAL AND INTELLECTUAL DEVELOPMENT.**

The normal development of the child from infancy up to adolescence with emphasis on ways of conceptualizing development in cognitive functioning, language, and exploratory behavior.  
*Four semester hours.* Mr. Whiteside.

**150b. INTRODUCTION TO CHILD PSYCHOLOGY: PERSONALITY AND SOCIAL DEVELOPMENT.**

The development of the child's personality and interpersonal behavior, in relation to family, peer group and culture.  
*Four semester hours.* Mrs. Nelson-Shapiro.

**160b. QUANTITATIVE METHODS.**

Introduction to basic techniques of descriptive and inferential statistics. Primarily for sophomores with a good background in algebra, and prospective majors intending to spend the junior year away from Clark.  
*Four semester hours.* Mr. Broverman.

**170a. INTRODUCTION TO SOCIAL PSYCHOLOGY.**

An examination of the relationship between the individual and the social system as understood through the theories, methods, findings, and applications of social psychology.  
*Four semester hours.* Mr. Sampson.

**172a. PSYCHOLOGY OF PERSONALITY.**

Consideration of various theoretical approaches, including psychoanalytic, behaviorist and self theories, and of research work in areas such as anxiety, stress, unconscious processes, emotion and motivation.  
*Four semester hours.* a. Mr. Laird; b. Mr. Cirillo.

**180b. DESCRIPTIONS OF NATURAL PHENOMENA: SPRING.**

A course designed to compare the effectiveness of literary, biological, psychological, graphic, and/or other methodologies in rigorously describing a natural phenomenon. Limited to senior undergraduates with specialized training or skills. Permission of instructor required.  
*Four semester hours.* Mr. Thompson.

**182a. PRIMATE SOCIAL BEHAVIOR AND HUMAN EVOLUTION.**

The study of the social behavior of monkeys and apes highlights central problems in psychological, zoological, and anthropological approaches to behavior. It also has important implications for the past evolution and present nature of man's sociality.  
*Four credit hours.* Mr. Thompson.

**184b. PHENOMENOLOGY OF PERSONAL ACTION.**

In this course we will consider behavior to be an independent rather than a dependent variable, examining the implications of concepts such as: assertion, commitment, identification, liberation, etc. The first hour of each class session is a lecture devoted to the analysis of a concept. In the second hour, we will divide into small groups which will use Cohn's "theme centered" method to confront the conceptual analysis with data from our personal experience.  
*Four semester hours.* Mr. deRivera.



201a,b. LABORATORY IN SOCIAL PSYCHOLOGY.

Focuses on the behavior of small groups. Participation in this laboratory includes chairing one of the discussion groups in Psychology 184b.

*Four semester hours.*

a. To be announced; b. Mr. deRivera.

203b. LABORATORY IN PERCEPTION.

The laboratory course in perception will include investigation of sensory and perceptual phenomena in a variety of sense modalities. Theoretical and methodological issues will be considered in the context of specific experimentation. Prerequisite: Psychology 160b or 260a.

*Four semester hours.*

To be announced.

204b. LABORATORY IN LEARNING.

The course is designed to familiarize students with research methods and experimental designs used in investigations of theories of learning and learning phenomena, with both human and animal subjects. Prerequisite: Psychology 130a and either Psychology 160b or 260a.

*Four semester hours.*

To be announced.

205a. LABORATORY IN THINKING.

Empirical studies of selected problems in such areas as concept formation, problem solving, and psycholinguistics. Related theoretical and methodological issues considered in their historical context. Prerequisite: Psychology 160b or 260a.

*Four semester hours.*

Mr. Cirillo

206a. LABORATORY IN PERSONALITY.

Focus on issues and problems in psychological research in general and in the personality area in particular, the problems being exemplified in studies developed and performed by the class group and by individuals. Experiments may be in any of the conventional areas of personality research, such areas as perceptual defense, motives and performance, self perception, experimenter influence and emotions. Prerequisite: Psychology 160b and 172a, or their equivalents.

*Four semester hours.*

Mr. Laird.

209a. DEVELOPMENTAL APPROACHES TO BEHAVIOR.

Not offered, 1972-73.

A critical examination of presuppositions, methods, concepts and empirical inquiries of those concerned with the development of behavioral systems. Implications of developmental conceptualization for all of the life sciences will be discussed. Psychological theories of Freud, Piaget and Werner will be given special emphasis.

*Four semester hours.*

Mr. Kaplan.

211a. DEVELOPMENTAL APPROACHES TO LEARNING.

Not offered, 1972-73.

Applications of developmental psychology to slow learners in the classroom. Particular attention is paid to the work of Kephart, Rabinovitch and Cruickshank. Practicum work with children is required. Prerequisite: Psychology 160b or 260a; 209a.

*Four semester hours.*

Mr. Bibace.

221b. MYTH, DREAM AND SYMBOL.

Not offered, 1972-73.

A critical examination of various theories of symbol-formation with special emphasis on the origins, structures and functions of dreams and myths. The relation of dream formation to psychopathology

and the recent work on the physiological bases of dreaming will also be discussed. Prerequisite: consent of the instructor. Limited enrollment.

*Four semester hours.*

Mr. Kaplan.

**222a. THE PHYSIOLOGY OF BEHAVIOR.**

A survey of current problems in Physiological Psychology including theories of brain function. Emphasis will be placed on the underlying physiological mechanisms which mediate human behavior, i.e., motivation, emotion, learning, perception, and memory. The course is constructed on a systems approach, designed to demonstrate the complex and interdependent relationship of the body and brain to behavior.

*Four semester hours.*

Mr. Stein.

**223b. LABORATORY IN PHYSIOLOGICAL PSYCHOLOGY.**

Introduction to methods, techniques, and experiments used to study the physiological bases of behavior. Students also participate in debates of interest to the group. Prerequisite: Psychology 222a or consent of the instructor.

*Four semester hours.*

To be announced.

**225a. SEMINAR IN REHABILITATION PSYCHOLOGY.**

Psychological problems in everyday life situations, such as problems of physically disabled, mentally retarded, the aged, the poor, etc., will serve as topics. The primary focus is on interpersonal relationships and value problems.

*Four semester hours.*

Miss Dembo.

**227a. BIOLOGICAL CORRELATES OF BEHAVIOR.**

Special emphasis on sex differences.

*Four semester hours.*

Mr. Broverman.

**228a. PSYCHOLOGY OF LANGUAGE.**

A psychological analysis of the use of symbols in language, dreams, and myth. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Kaplan.

**229b. ADVANCED PRACTICUM IN PHYSIOLOGICAL PSYCHOLOGY.**

A tutorial course available to students who desire to develop expertise in methods appropriate for the study of brain mechanism and behavior. The goal of the course will be to provide the student with the technical capacity to carry out individual research projects in which it may be necessary to perform surgery, prepare and carry out histological examinations, analyze electrophysiological data, etc. Project meetings and workshops in specialized areas will also be available. Prerequisite: Psychology 222a and 222b. Permission of instructor required.

*Four semester hours.*

Mr. Stein.

**231b. SEMINAR IN THE HISTORY OF PSYCHOLOGY.**

Historical development of theories and methods in psychology. Prerequisite: consent of the instructor.

*Four semester hours.*

Mr. Kaplan.

236b. LABORATORY IN CHILD PSYCHOLOGY.

Survey of research methods used in the study of children. Lecture: 2 hours. Laboratory 3 hours. Prerequisite: Psychology 160b, 260a, 150a or 150b.

*Four semester hours.*

Mrs. Nelson-Shapiro.

241a. PROBLEM SOLVING IN DIVERSE SOCIAL CONTEXTS.

Applications of organismic-developmental conceptions to difficulties encountered by people in different phases of the life cycle and in diverse social contexts. Emphasis on causal reasoning and sequential organization of cognitive functions. Prerequisites: Two of the following: 150a; 203b; 205a; 209a. Limited to Juniors and Seniors.

*Four semester hours.*

Mr. Bibace.

242a. LABORATORY/FIELD RESEARCH FROM THE ORGANISMIC-DEVELOPMENTAL PERSPECTIVE.

Theory, findings and research problems deriving from an on-going research program — an organismic-developmental systems approach to the analysis of perceptual and other cognitive processes — will be discussed. Empirical studies on problems relevant to the research program will be formulated and conducted by individual students. Papers describing the research project will be prepared. Prerequisite: Psychology 160b or 260a; Permission of the Instructor.

*Four semester hours.*

Mr. Wapner.

243b. ADVANCED GENERAL PSYCHOLOGY: AN ORGANISMIC-DEVELOPMENTAL APPROACH.

Behavior will be analyzed from the organismic-developmental systems point of view, and will include treatment of organism-environment transactions with respect to ontogenesis and aging, phylogenesis, pathogenesis, and microgenesis.

*Four semester hours.*

Mr. Wapner.

244a. PERCEPTUAL DEVELOPMENT.

Perceptual development is viewed as an active construction of the perceptual world by the individual. Special attention is paid to the reciprocal influences of cognitive and perceptual process in their development.

*Four semester hours.*

Mr. Whiteside.

245a. SOCIALIZATION.

Several major theories of socialization, such as social learning theory, cognitive developmental theory, and Freudian theory are treated. Emphasis is on the parts played by different socialization agents (e.g., parents, peers, schools, television) in the learning of social roles.

*Four semester hours.*

Mrs. Nelson-Shapiro.

260a. INTRODUCTION TO QUANTITATIVE METHODS IN PSYCHOLOGY.

Introduction to statistics and its application in the verification of theories.

*Four semester hours.*

Mr. Rankin.

270b. ADVANCED TOPICS IN SOCIAL PSYCHOLOGY.

Not offered, 1972-73.

Intensive treatment of selected areas in social psychological research and theory, including: consistency theories in attitude formation and in interpersonal perception; attribution theory in self-

perception; social/situational determinants of normal, everyday behavior, and of anti-social behaviors such as violence, criminality and riots. Permission of instructor required.

*Four semester hours.*

Mr. Laird.

**280a. THE HISTORY AND PRESENT STATUS OF INSTINCT.**

It has long been argued and long contested that man and animal alike are guided in their social behavior by innate tendencies. This offering will emphasize the devious and irrational course of progress in a scientific field of study so loaded with social and philosophic implications. Permission of the instructor.

*Four credit hours.*

Mr. Thompson.

**283b. PRINCIPLES OF BEHAVIORAL EVOLUTION.**

From a broad survey of the social systems of animals, this course will attempt to distill the general principles that have directed the evolution of animal behavior.

*Four credit hours.*

Mr. Thompson.

**284a. PIAGETIAN DEVELOPMENTAL PSYCHOLOGY.**

A critical examination of presuppositions, methods, concepts, observations and experimentations of the School of Geneva. Prerequisite: Psychology 150a or 150b.

*Four semester hours.*

Mr. Vonèche.

**285a. CONCEPTS IN THEORIES OF PERSONALITY – NORMAL AND ABNORMAL.**

Consideration and a critical analysis of (1) concepts and issues in theories of personality, and (2) concepts used to account for deviant behavior. Prerequisite: Psychology 172, 103.

*Four semester hours.*

Mr. Wiener.

**287b. COMMUNICATION: VERBAL AND NONVERBAL.**

Not offered, 1972-73.

(1) An analysis of the term communication, and (2) a study of the varieties in communication patterns for different populations.

*Four semester hours.*

Mr. Wiener.

**288b. SELECTED PROBLEMS IN PSYCHOLOGY.**

Not offered, 1972-73.

Seminar to pursue topics in psychology of particular interest to advanced undergraduates. Each student will select a topic and lead the seminar for one or more meetings. The focus of this course will be to learn of the joys of ideas and of independent, scholarly inquiry.

*Four semester hours.*

Mr. Wiener.

**289b. FIELD OBSERVATION: COGNITIVE AND SOCIAL-INTERPERSONAL BEHAVIOR IN THE CLASSROOM SETTING.**

Illustration of various cognitive and social-interpersonal models of human behavior in the classroom setting. Special consideration will be given to the work of Freud, Piaget, Skinner, Wertheimer, Lewin, and F. Kluckhohn. Students will carry out field observations, and formulate and execute their own individual projects. Limited; Permission of instructor required.

*Four semester hours.*

Mr. Zern.



296a,b. DIRECTED RESEARCH IN PSYCHOLOGY.

Independent study for qualified students not in the honors program. Prerequisite: approval of department chairman.

*Credit to be arranged.*

Staff.

297a,b. DIRECTED READINGS IN PSYCHOLOGY.

Independent study for qualified students not in the honors program. Prerequisite: approval of department chairman.

*Credit to be arranged.*

Staff.

299. HONORS IN PSYCHOLOGY: SENIOR YEAR.

Students will carry out a research project under the direction of a member of the staff.

*Four semester hours each semester.*

Staff.

300. DIRECTED READINGS IN DEVELOPMENTAL THEORIES.

This is a course specifically oriented toward incoming students or those who are relatively unfamiliar with the concepts, methodologies, problems and scope of certain major theoretical systems in developmental psychology. Under the supervision of staff members and advanced graduate students, incoming students will be directed in certain readings designed to provide them with a reasonable acquaintance with both genetic-structural and neo-behaviorist developmental theories: Piaget, Werner, Freud, Erikson, Klein-Fairbairn-Winnicott on one side; Sears, Baer-Bijou, Bandura-Walters on the other. Students in this course will also be asked to read relevant works in theory of knowledge and philosophy of science pertaining to the developmental approaches. Periodic discussions of the materials read will be arranged with staff and advanced graduate students. After each bloc of readings, there will be intensive discussions with either a staff member or outside visitor.

Staff.

301. EXPERIMENTAL METHOD IN PSYCHOLOGY.

During the first semester, the experimental method will be briefly treated in general terms and then developed more specifically with respect to the research of staff members, who will present their own current research with an emphasis on the special features of methodology they employ, including the links between method, theory, problems and findings. During the second semester, there will be informal ad hoc individual or group meetings, with faculty of the student's own choice, working toward developing an empirical study of a problem that the student may or may not develop into a Master's Thesis. At the end of the first semester, the student will prepare a progress report on the status of his formulation of an empirical problem. At the end of the second semester, the student will present a written report for deposit with the Department which covers the status of the student's problem formulation and research.

Mr. Wapner.

302. STATISTICAL METHODS.

Descriptive statistics, statistical inference and experimental design in psychology.

Mr. Rankin.

307a. PHYSIOLOGICAL PSYCHOLOGY: ADVANCED.

A survey of current problems, theories and controversies in physiological psychology. Course orientation will be similar to the introductory course with more attention to critical experiments and controversies. Also considered will be the neuroanatomy and neurophysiology of important CNS structures. Prerequisites: Some knowledge of experimental methods in psychology.

Mr. Stein.

**307b. SELECTED PROBLEMS IN PHYSIOLOGICAL PSYCHOLOGY.**

An advanced course in research methodology including surgical and stereotaxic techniques, histology, EEG recording and analysis and general methods for animal care. Open only to graduate students, and by permission of instructor. Mr. Stein.

**309. APPRENTICESHIP IN REHABILITATION: Introductory I.**

Miss Dembo.

**310. APPRENTICESHIP IN REHABILITATION: Introductory II.**

Miss Dembo.

**311a. CLINICAL METHODS I.**

Intelligence testing with adults. Emphasis is placed upon conceptual frameworks for cognitive assessment. Mr. Baker.

**311b. CLINICAL METHODS I.**

Intelligence testing with children. Emphasis is placed upon conceptual frameworks and cognitive assessment. Mr. Ciottone.

**312. PSYCHOPATHOLOGY.**

Introduction to psychopathology: Directly through naturalistic observation and talking with seriously disturbed individuals; and indirectly by reading clinical and experimental reports related to description and explanation in psychopathology. A paper on some specific psychopathological phenomenon (e.g., delusions, hallucinations) will be required. Mr. Bibace.

**313b. PRINCIPLES AND CONCEPTS UNDERLYING PSYCHOLOGICAL TESTS.**

Not offered, 1972-73.

Theory and problems of psychological measurement with special reference to psychological tests.

Mr. Laird.

**315b. ADVANCED CHILD PSYCHOLOGY: PERSONALITY-SOCIAL.**

Not offered, 1972-73.

Discussion of current conceptions and research pertaining to some question in the general area of personality-social development, such as imitation-identification, moral reasoning, etc.

To be arranged.

**316a. RESEARCH METHODS IN THE STUDY OF CHILDREN.**

Not offered, 1972-73.

Survey of methods used in the study of children with emphasis on observational techniques. Questions of research strategy and analysis of findings in the study of developmental problems will be considered. To be arranged.

**317b. BEHAVIOR IN INFANCY.**

Not offered, 1972-73.

Examination of various aspects of infant behavior with opportunity to participate in empirical work with infants. Mrs. Uzgiris.

**318. SEMINAR IN PSYCHOLOGY OF INTERPERSONAL RELATIONSHIPS AND REHABILITATION.**

Value problems pertinent to interpersonal relations will be discussed, including value possessions, value losses, regaining of values and adjustment to value losses. Miss Dembo.

320a. ADVANCED SEMINAR IN GENETIC-STRUCTURAL THEORIES.

In this seminar, the major categories of all genetic-structural developmental theories (Freud, Werner, Piaget, et al) and the concepts and methodologies specific to different theories will be thoroughly examined and critically analyzed. This is an ongoing seminar comprised of advanced graduate students and including interested faculty. The seminar deals with the systemic roles of such concepts as "development," "structure," "regression," "system," "stage," etc.

Mr. Kaplan.

320b. ADVANCED SEMINAR ON ORGANISMIC-DEVELOPMENTAL APPROACHES TO BEHAVIOR.

Basic categories of the organismic-developmental approach to life sciences, with examination of the application of these categories to a wide range of problem areas in psychology.

Mr. Kaplan.

322a.b. PSYCHOLOGY OF LEARNING.

Theoretical viewpoints and experiments in the field of learning.

Mr. Stevens.

324a. THEORIES OF PERSONALITY.

This course covers three areas: (1) discussion of the philosophical bases of "theories" of personality; (2) consideration of some of these issues in the different theories (e.g., Freud, Kelly, Dollard and Miller); and (3) presentation and discussion of an alternative framework derived from the current work of Wiener, et al.

Mr. Wiener.

330a. GRADUATE SEMINAR ON TEACHING OF GENERAL PSYCHOLOGY.

Not offered, 1972-73.

Graduate Students who will participate as teaching assistants in General Psychology, will work on the formulation of all features of the course including assignments, responsibilities for lectures, readings, demonstrations, etc.

Mr. Wapner.

331a. CLINICAL METHODS, II.

Application of various clinical methods in the assessment of personality.

Mr. Ciottonne.

331b. CLINICAL METHODS, II.

Application of developmental theory to the clinical assessment of cognitive functioning and personality by means of projective techniques.

Mr. Cirillo.

332b. THEORIES OF PSYCHOTHERAPY.

Not offered, 1972-73.

Comparison of various theoretical approaches to psychotherapy.

Mr. Wiener.

333b. FROM COGNITIVE PSYCHOLOGY TO GENETIC EPISTEMOLOGY.

The course will be a sort of meditation on the growth of knowledge. Special attention will be given to questions such as: present decline of absolutes in science; epistemological thresholds of the theory of explanation; forms of knowledge and their interface. Limited to students with a previous familiarity with the theories of Piaget and/or Werner.

Mr. Vonèche.

334b. SEMINAR IN ANIMAL BEHAVIOR.

A consideration of contemporary issues in the phylogeny and ontogeny of behavior in general and social behavior in particular.

Mr. Thompson.

335a. PRAXIOLOGY.

A study of human action seen from the standpoint of efficiency and as such unifying various domains like: body techniques, technology, crafts, ethics, social action, literature and religion. Mr. Vonèche.

336b. GENETIC EPISTEMOLOGY.

A critical review of the hypotheses presented to account for the apparent contradictions between the continuous creation of novelties (progress) and the double fact first that, from a logical viewpoint, these novelties become necessary as soon as they are constructed and that, second, at the reality level, they are the only ones to permit the conquest of objectivity. Special emphasis will be put on developmental solutions, their methodologies and their results in the field of biopsychogenesis of knowledge. Mr. Vonèche.

337a. FUNCTIONS OF THE DIFFERENT EMOTIONS.

Following the rules of "Conceptual Confrontation," we will attempt to explicate a different function for each emotion in a way that systematically relates the emotions named in the English language. Mr. deRivera.

338a. CONCEPTIONS OF PERSON.

Examination of research and theory in the areas of self concept and of person perception with a focus on relationship between the two. Mr. Laird.

339a. SEMINAR ON THE EFFECTS OF EARLY EXPERIENCE.

Not offered, 1972-73.

An examination of recent evidence pertaining to the effects of various circumstances during early ontogenesis on the course of cognitive and motivation development aimed at conceptualizing these effects within a coherent framework. Mrs. Uzgis.

340b. PHENOMENOLOGY OF INTERPERSONAL RELATIONS.

Interpersonal phenomenon will be systematically examined with the methodology of "Conceptual Confrontation." Mr. deRivera.

342b. CHEMICAL COMMUNICATION.

A seminar dealing with the role of pheromones in mammalian behavior. Mr. Stevens.

343b. PERCEPTION.

Examination of the logic underlying the perception of physical and social objects. Mr. Rankin.

348b. SOCIAL PSYCHOLOGICAL PERSPECTIVES ON PROBLEMS OF ADJUSTMENT.

Not offered, 1972-73.

Examination of "deviant" behavior as a socially defined phenomenon, including attention to: the process of attitude and belief formation and change; attribution of characteristics to the self and others; "cognitive" influences on motivation and emotions; socialization of children and adults; and the role of the deviant in society. Consideration of implications of these topics for behavior change. Mr. Laird.

349. APPRENTICESHIP IN REHABILITATION: ADVANCED, I.

Miss Dembo.

350. APPRENTICESHIP IN REHABILITATION: ADVANCED, II.

Miss Dembo.



351. CLINICAL METHODS, III.

Practicum in case integration and child therapy.

Mr. Gardner.

352. CLINICAL METHODS, IV.

Practicum in intake interviewing and psychotherapy.

Staff.

357a. SYMBOLIC BEHAVIOR.

Not offered, 1972-73.

A seminar focusing on the problem of representation or symbolization, with special attention to the representation of abstract or "intangible" conceptions (meanings) in concrete objects, events, patterns, etc. The seminar will concern itself with the developmental processes by which individuals represent meanings in dreams, political cartoons, spatial arrangements, material structures and finally linguistic forms. Discussions will center on theses advanced by Freud, Jung, Stekel, E.T. Hall, J. Ruesch, E. Goffman, M. Eliade, Cassirer, Susanne Langer, Werner and Kaplan. Also considered will be writings of literary critics, such as Kenneth Burke, Northrop Faye, Stanley Hyman and others, as well as the works of folklorists, students of ritual and myth (e.g., Campbell).

Mr. Kaplan.

371a. RACE AND SEX DIFFERENCES.

A critical examination of empirical research on sex differences (e.g., hormonal, intellectual) and race differences (e.g., genetic, intellectual, social). The attempt will be made to determine fruitful areas for future research and to devise new methods of investigation.

Mrs. Nelson-Shapiro.

372b. PERCEPTUAL DEVELOPMENT: ADVANCED.

A critical treatment of theoretical and methodological issues concerning the reciprocal influences of cognitive and perceptual processes in the active construction of the perceptual world.

Mr. Whiteside.

380. RESEARCH IN PSYCHOLOGY.

Direction of individual students in their research.

Staff.

381. READINGS IN PSYCHOLOGY.

Critical analysis of literature in areas related to individual research.

Staff.

382b. PRACTICUM IN SCHOOL SYSTEM.

Organismic-developmental approach to assessment, remediation, and consultation in a school system.

Mr. Bibace and Agency Staff.

383b. PRACTICUM IN CONSULTATION WITH CLERGY.

Consultation in cognitive problem solving approach to human issues confronting clergy in various settings (e.g., general hospitals, mental hospitals, parishes, etc.).

Mr. Bibace and Agency Staff.

385. PARTICIPATION IN PSYCHOLOGICAL SERVICES CENTER, I.

Mr. Baker and Staff.

386. PARTICIPATION IN PSYCHOLOGICAL SERVICES CENTER, II.

Mr. Baker and Staff.

387. PARTICIPATION IN PSYCHOLOGICAL SERVICES CENTER, III.

Mr. Baker and Staff.

388. PARTICIPATION IN PSYCHOLOGICAL SERVICES CENTER, IV.

Mr. Baker and Staff.

# Sociology

## DEPARTMENT FACULTY

Edward E. Sampson, Ph.D., *Professor of Sociology; Chairman, Department of Sociology and Adjunct Professor of Psychology*

Alan E. Guskin, Ph.D., *Provost and Adjunct Professor of Sociology and Psychology*

Stanford N. Gerber, Ph.D., *Associate Professor of Social Anthropology*

Rona M. Fields, Ph.D., *Associate Professor of Sociology*

Paula L. Goldsmid, Ph.D., *Assistant Professor of Sociology*

Christopher J. Hewitt, Ph.D., *Assistant Professor of Sociology. (On leave, 1972-73.)*

Archie Smith, Jr., Rev., M.S.W., *Assistant Professor of Sociology*

Robert J.S. Ross, M.A., *Assistant Professor of Sociology*

## UNDERGRADUATE PROGRAM

The goals of the Sociology Department are to enable persons to obtain a *working knowledge* of those theories, concepts, methods, and findings of Sociology and related disciplines that are relevant to understanding and affecting the origins, development, maintenance, and change in social institutions and forms of social organization.

- The program is problem focused to the extent that emphasis is placed upon the importance of learning through involvement in ongoing, contemporary social issues and concerns.

- The program is conceptual and academic in that emphasis is placed upon students obtaining a thorough grasp of theoretical, methodological, and applied aspects of the discipline.

- The program is interdisciplinary and comparative, drawing material and approaches from all relevant social sciences. Field work and practicum courses are available to interested students in order to facilitate the combination of cross-cultural theory and practice. Ethnographic experience is available in Western and non-Western contexts.

- The program seeks not only to bring Clark into the community, but as importantly, to bring the community into Clark.

- The program seeks to facilitate the development of persons who are sociological advocates, i.e., persons with a sufficient theoretical, methodological, and practical knowledge regarding social institutions, social organizations, and social change to work effectively as resource agents for the community.

The nature of the department demands that the students and faculty be continually sensitive to the value bases, policy implications, and responsibilities of our theories, methods and goals.

The major in Sociology must take 32 hours in Sociology, to be divided among general courses and the areas of theory, methods and application. In addition, the student must take 16 hours in related fields; by university rule, the student must take 36 hours in unrelated fields. Certain courses in most university departments are considered related: e.g., certain courses in Geography, Psychology, History, Government, Economics, Philosophy, and Education. A more specific list of these courses will be available each fall.

Most courses do not have prerequisites as such; it should be noted, however, that certain courses must be entered by the permission of the instructor. While all courses encompass theory, method, and applications of knowledge, courses within the department vary in their central focus; i.e., the degree to which the material of the course focuses upon theory-and-conceptualization; on methods of inquiry and research; or on the application of theory and methods to particular issues and problems. The following is a guide to the numbering system of Sociology courses:

|                   |         |         |
|-------------------|---------|---------|
| General           | 100-139 | 200-239 |
| Theory            | 140-169 | 240-269 |
| Methods           | 170-179 | 270-279 |
| Project-Practicum |         |         |
| Applications      | 180-199 | 280-299 |

In addition to the courses listed below, a number of junior-senior level courses in Sociology are being offered at the local Consortium colleges. Enrollment in these courses is limited and students who are interested are urged to enroll for them early.

Variable credit, practicum courses which generally range from 1-8 semester hours per term may be taken for credit more than once. These courses will proceed according to a teaching-and-learning contract agreed to individually at the beginning of each term by each student and the course instructor. The contract will define the specific nature of the student's work to be undertaken for that term and the credit hours which are necessary to fulfill that contract. The teaching-and-learning contract and the repeatable nature of the practicum courses will help ensure a continuity of student experience and commitment in undertaking lengthy project-related work; at the same time contracts will ensure that the specific content approached each term will vary as a function of the growing perspectives which the project reveals during the term and the contractual agreement which reflects these new directions for continuing investigation and practicum experience. Special forms will be made available for establishing and recording each contract for each course; these forms will be retained on file in the department office and with the registrar.

## GRADUATE PROGRAM

At the present time, the department is not accepting students for the Master of Arts degree. Plans are being made, however, to re-institute the degree program beginning Fall semester 1973.

## COURSES

### 100. ORIENTATION TO SOCIOLOGY.

This is a general introductory course to the discipline of Sociology, intended mainly for students who wish to gain a broad, general overview of the field, its areas of study, methods of inquiry and conceptions and analyses of society.

*Four semester hours.*

Staff.

### 105a. INTRODUCTION TO SOCIAL PSYCHOLOGY (same as Psych. 170.)

An examination of the relationship between the individual and the social system as understood through the theories, methods, findings, and applications of social psychology.

*Four semester hours.*

Mr. Sampson.

### 110a. INTRODUCTION TO FEMALE STUDIES.

An overview of the problems, issues and research on sex role dichotomization and the bio-social systems which produce and maintain them. While particular emphasis will focus on material from

Sociology and other relevant social sciences, topics from the humanities and the biological sciences will also be considered.

*Four semester hours.*

Ms. Fields.

**140b. SOCIAL STRUCTURE, CULTURE AND PERSONALITY.**

An examination of theory and method in psychological anthropology. The relationship between culture and personality; basic personality types; national character; language and culture.

*Four semester hours.*

Mr. Gerber.

**141b. SEMINAR ON VIOLENCE.**

The focus is on collective violence. The seminar is exploratory and experimental. It will attempt to focus on cultural, structural and psychological processes that generate violent outcomes in contemporary society. A variety of "approaches" from a number of disciplines will be involved; this implies a degree of openness in the structuring of the seminar. During the latter half of the seminar, students will be encouraged to work up their own approaches to the principal questions raised in the seminar, depending on the students' own interests and experiences. Attention will be given to the findings of the Lemberg Center for Violence at Brandeis University.

*Four semester hours.*

Mr. Smith.

**143b. PROBLEMS OF DEVIANCE.**

This course has two fundamental objectives: (1) to introduce the student to some of the literature, research, and conceptual problems in the field of deviance; and (2) to examine three conceptual frameworks out of which contemporary definitions of deviance emerge. The major purpose of this course is to increase the student's sensitivity to some of the major factors affecting deviant behavior which any social action program must take into account.

*Four semester hours.*

Mr. Smith.

**170a. EMPIRICAL METHODS OF SOCIAL SCIENTIFIC INQUIRY.**

This course will provide a general introductory survey to various methods employed in social scientific inquiry, including for example, the sample survey, interviewing, questionnaire approaches, participant-observation, life history approaches, experimental methods, etc. The course will examine general issues involved in research design and research evaluation as well as issues involved in selecting methods to suit particular research problems and questions.

*Four semester hours.*

Ms. Fields.

**200. DIRECTED READINGS IN SOCIOLOGY.**

Staff.

**201. SPECIAL PROJECTS (RESEARCH).**

Staff.

**241a. SOCIOLOGY OF LEARNING.**

An analysis of how the organizational structures of educational institutions effect the learning of students. Analysis of how such organizations are structured, how they maintain themselves, and how they change. Particular emphasis will be placed on high schools and on the development in this class of a learning environment that facilitates learning. Some knowledge of social psychology or sociology is desired. Seminar primarily for Juniors and Seniors.

Mr. Guskin.



**242b. NATIONAL POWER AND DECISION MAKING.**

The theoretical and empirical consideration of nature of power in modern society. The seminar will examine the policy making process in the United States with reference to a variety of national issues.

*Four semester hours.*

Mr. Ross.

**244a. COMPARATIVE RACE AND ETHNIC RELATIONS.**

This course focuses upon race and ethnic relations in cross cultural perspective. Primary field data will be presented from the West Indies and North American ethnic communities. Contemporary and historical theories (Ross, Park, Schermerhorn, Nettleford, Hamilton, etc.) will be explored and evaluated. Students will be expected to prepare a paper based on the experiences of one particular ethnic group.

*Four semester hours.*

Mr. Gerber.

**245a. THEORETICAL MODELS IN SOCIAL ACTION.**

A critical evaluation of anthropological, sociological, and literary sources and their application to contemporary social problems.

*Four semester hours.*

Mr. Gerber.

**246a. SOCIAL PLANNING AND SOCIAL POLICY.**

This seminar will be concerned with the development of planning skills and analyses of policy issues related to urban social problems. The seminar will address itself to three major objectives: (1) how social policy is formulated; (2) how social problems are analyzed from the perspective of the policy makers; (3) how social policy addresses problems of social importance in urban society. The student will be introduced to the literature of the field, and will be given opportunities to plan around specific urban social problems.

*Four semester hours.*

Mr. Smith.

**247a. URBAN COMMUNITIES.**

The ethnic and other communities of the big cities will be examined through the literature of historical and community studies; these materials will provide the basis for interpreting urbanism and the politics of the recent period. The political machines, the functions of social policy, and the problems of our big cities are some of the broader issues discussed.

*Four semester hours.*

Mr. Ross.

**249b. PERSPECTIVES ON THE BLACK COMMUNITY IN AMERICA.**

The course emerges out of recognition that serious attention must be directed toward planning for the future survival of the black community in America. This course will examine the historical roots of the black community in America. The major focus will be on developing a conceptual framework for analyzing problems that emerge from being in America and what must be done to survive the 20th century. This seminar will be exploratory in nature.

*Four semester hours.*

Mr. Smith.

**251b. POLITICAL AND SOCIAL THEORY.**

Starting with the statements of the classical tradition in Sociology (Marx, Weber, Mannehim, etc.) this course examines the large scale theories of the nature of the modern political system, concentrating on Western capitalism. We will attempt to understand the traditions of analysis of liberalism and Marxism and how they differ in judging both the actual nature of these societies and their presumed dynamics.

From this starting point, we go on to examine the nature of the state in modern capitalism and the social forces which create and maintain political power.

*Four semester hours.*

Mr. Ross.

#### 252a. PERSPECTIVES ON RACISM.

The purpose of this seminar is to enable the participant to begin to develop a theoretical framework for analyzing problems of racism and to conceptualize solutions to the problems consistent with the analysis.

*Four semester hours.*

Mr. Smith.

#### 253a. CONFLICT AND POLITICAL PROCESS IN IRELAND.

An introduction to the socio-political context of the present conflicts in Ireland. Irish history, culture, social organization and social problems will be critically examined.

*Four semester hours.*

Ms. Fields.

#### 255b. SEMINAR ON THE FAMILY.

Critical, historical and feminist perspectives on the institution of marriage and the family. The seminar will consider comparative, historical and theological analyses of the social role of women vis-a-vis the role relationships inherent in marital institutions.

*Four semester hours.*

Ms. Fields.

#### 259.\* ADVANCED SOCIOLOGY LECTURES

\*May not be offered 1972-73.

This "course" involves a series of lectures by members of the Sociology faculty and other faculty at Clark University and invited persons from outside the University, covering topics of special interest and relevance to the lecturer's research and scholarship. Lectures will range from presentations of well formulated ongoing or accomplished work to presentations of a more broadly adventuresome, exploratory sort. Lectures will be given once a week for the entire year. Persons and topics will be announced in advance where feasible. While no particular continuity is likely to characterize the content of the entire year, it will prove beneficial wherever possible to cluster together lectures which focus on the same general theme. It is expected that a given lecturer may take anywhere from one to three two-hour sessions for his presentation. The intention of this lecture series is to provide a formal and continuing occasion that will stimulate and give a forum for faculty work, while providing students with unique opportunity to examine topics and issues which may not yet be integrated into regular University courses or curricula. Students are invited to attend these lectures and to participate in the discussions and seminars they may generate. Those students who desire credit for taking this as a course may do so by making individual contractual agreements with one or more of the involved faculty. Credit is variable between 1 and 4 credits per semester, as a function of the agreement reached as to the amount of time spent in attendance at the lectures and the amount of outside work (e.g., additional reading and formal reports) undertaken.

Staff.

#### 271a.b. FIELD METHODS (INDIVISIBLE).

A seminar and practicum on field work methods. The role of the participant-observer. Recording cohesion and disintegration. Students obtain supervised field experience.

*Four semester hours.*

Mr. Gerber.

#### 275b. SEMINAR ON ETHICAL ISSUES IN SOCIAL RESEARCH.

Social scientists face numerous ethical dilemmas regarding their research and its uses. The seminar

examines these issues and problems within a context provided by moral and social philosophy and the writings of social scientists.

*Four semester hours.*

Ms. Fields.

#### 280. JOURNALISM AND SOCIOLOGY – A STUDY OF THE MASS MEDIA.

An examination of the theories and concepts of the mass media, concentrating in particular on the newspaper, its function and role in society, its use in the dynamics of social change, its use as an instrument of sociological inquiry. The class will be organized around both general theory and method and their application in the production of a brief newsletter.

*Credit is variable from 1-8 credits per semester.*

Staff.

#### 285b. PRACTICUM IN SOCIAL HISTORY, SOCIAL MOVEMENTS AND SOCIAL ISSUES: THE NEW LEFT AND DISSENT IN THE SIXTIES.

The existing books and articles on the New Left are uniformly ahistorical, or where historical, are inaccurate, ill-informed, and inauthentic. What is needed, a first rate sociological history of the period and its movements, will provide the general framework guiding this course, as students will work overtime to produce the materials and analyses needed to create a scholarly, relevant, and publishable piece of work. Some issues to be examined include, for example, the class forces which the new movements represent; the relation between ideology and action, etc. Resources for the course range from studies of activists that social survey and social psychology have conducted to documents, chronologies, interviews, etc. At the outset of the term, the students and the instructor will formulate a work-contract defining their mutual responsibilities and future use of the material: e.g., authorship, publication, etc.

*Credits are variable from 1-8 per semester.*

Mr. Ross.

#### 294. PRACTICUM IN SOCIAL ORGANIZATION.

An examination of the various theories, methods, and concepts of social organization and their application to the development and maintenance of the Sociology Department at the University.

*Credit is variable from 1-8 credits per semester.*

Mr. Sampson.

#### 295.\* SOCIOLOGY TEACHING

\*May not be offered 1972-73.

In recognition of the valuable experience and knowledge gained in the process of teaching one's field to others, a special teaching seminar-practicum has been established. Students will be actively involved individually or in small groups in various supervised sociology teaching programs (e.g., as assistants in courses), here and elsewhere, and will meet weekly in a seminar to discuss, analyze, and evaluate their experiences, to develop new approaches to teaching sociology, to conduct systematic reviews of the teaching-learning process, and in other ways to gain helpful knowledges about the discipline of sociology and its teaching.

*Credit variable from 1-8 credits per semester.*

Staff.

#### 296.\* PRACTICUM IN COMMUNITY DEVELOPMENT

\*May not be offered 1972-73.

Selected students who are presently involved in supervised programs in community development or those who wish to become involved, will participate together in a weekly seminar that discusses, analyzes, conceptualizes and evaluates the utilization of social scientific knowledge and skills in community contexts. It is expected that students, individually or in groups, will receive direct supervision of their work by means of arrangements contracted with individual members of this staff or



other approved supervisors; the weekly seminar will provide an opportunity for a more conceptual and analytic discussion of the variably supervised applications.

*Credit is variable from 1-8 credits per semester.*

Staff.

## Technology and Man

### PROGRAM COMMITTEE

Christoph Hohenemser, Ph.D., *Associate Professor of Physics, Chairman*

Harry C. Allen, Jr., Ph.D., *Professor of Chemistry*

Robert W. Kates, Ph.D., *Professor of Geography*

John T. Reynolds, Ph.D., *Professor of Microbiology*

Frank W. Puffer, Ph.D., *Associate Professor of Economics*

Allen E. Goodman, Ph.D., *Assistant Professor of Government and International Relations*

Technology and Man is a directed program of inter-disciplinary study with emphasis on the assessment of technology in a social and political context. The goal of the program is to train individuals who are able to deal with policy questions on the use and misuse of science and technology, and who do so with the short and long range limitations of the natural environment in mind.

Although science and social science are both important in man-technology studies, the requirements of the Program on Technology and Man do not give equal weight to both. Instead, course requirements give special emphasis to achieving literacy in science, and provide for significant achievement in at least one discipline of science. The reason for this emphasis is two-fold: (1) many significant problems are accessible only with a thorough grounding in science; (2) in the nation's future, there is a significant need for managers of technology whose experience with science and technology is more than perfunctory.

The major in Technology and Man should be of interest to students with significant talent for science, whose goal is *not* work at the frontiers of basic science, but who wish to work in the complex interface between science and society. Some graduates of the program may define themselves in terms of the rapidly emerging new field of technology assessment. Others may enter broadly defined graduate areas such as resource management, geography, oceanography, and environmental science. The program should also be of interest to pre-medical and pre-law students, potential school teachers, community service workers, government regulatory officials and science writers.

The requirements for a major in Technology and Man are as follows.

(1) Ten semesters of basic natural science, with at least six semesters in a single discipline. For the present purpose, the natural sciences shall include Physics, Chemistry, Biology and Mathematics.

(2) Four semesters of courses in social science selected with advice of the Program Committee to fulfill the goals of the program.

(3) Three semesters of problem oriented courses on specific issues. In general, the problem oriented courses will be offered under the specific auspices of the Program Committee, will provide a distinctly multi-disciplinary approach, will have a significant, if not predominant, science input, and will in most cases be offered jointly by two or more faculty.

The choice of specific courses to meet the science and social science requirements must be made with approval of the Program Committee. The student should present his plan of study in the form of a written proposal to the Chairman of the Program Committee. Preparation of the proposal should be



preceded by discussions with individual members of the Program Committee, particularly those who are affiliated with departments in which the student wishes to specialize.

The student who has intention to do graduate work is encouraged to investigate the minimum major requirements of the basic discipline of science in which he plans to concentrate, and may wish to fulfill these requirements along with the requirements of Technology and Man.

Because the Program on Technology and Man is interdisciplinary, it poses an unusually serious problem of comprehensive organization to the student. To evaluate the success of organization and integration, majors will be given a three-part comprehensive examination in their senior year. The three parts of the examination will be (1) basic science in a discipline of the candidate's choice; (2) basic social science in the discipline of the candidate's choice; (3) problems of Technology and Man in a special area of the candidate's choice. The examinations will be conducted under the auspices of the Program Committee with assistance from departments and visiting examiners. The examinations will be offered in January. For those who fail, a second chance will be given in May. Successful degree candidates must eventually pass two of the three comprehensives.

Students who wish to receive Honors in Technology and Man must pass the comprehensive examination at the B+ level, and must present an acceptable undergraduate thesis.

The following courses satisfy the requirements of problem oriented courses. The courses are open to all qualified undergraduate and graduate students, and have no specific pre-requisites.

#### 101a. INTRODUCTION TO TECHNOLOGY AND MAN.

The course seeks, through case studies, to introduce the student to the kinds of tools he will need in man-technology studies. For 1972-73, the U.S. transportation problem, particularly in urban areas, will provide a major focus. The scope of U.S. transportation systems will be described in physical and economic terms, with emphasis on resources required. Concepts from economics, the natural sciences as well as other disciplines will be introduced as needed. The design of optimal transportation systems will be considered, and the principles of cost-benefit analysis will be introduced. As an essential input to the latter, environmental 'dis-economies' such as pollution, resource depletion, and ecological alteration will be considered, and their significance evaluated. The course will culminate with a critical discussion of Boston area transportation studies, and will in certain instances include limited field work and experimentation. (The course is the same as Economics 123a.) Open to freshmen.

*Four semester hours.*

Messrs. Hohenemser and Puffer, and invited guests.

#### 201b. ENERGY AND MAN.

The purpose of the course is to examine some of the major consequences of man's exponentially growing utilization of energy. To make this possible, scientific principles necessary for understanding the various forms of energy in nature will be reviewed at the outset. Emphasis will be given to conservation laws, the storage of energy in atoms, molecules and nuclei, solar energy and energy flow in the biosphere. A survey will be given of man's past, present and expected future use of energy, including a breakdown into the major economic sectors at each time. With this, case studies of present energy technology will be made with emphasis on central station power plants and transportation. Technological choices for the future will be considered. Limitations, if any, to future energy use arising from resource depletion, pollution, and global heat balance will be examined. The course will conclude with a discussion of major factors that enter into the determination of a national and world-wide energy policy.

*Four semester hours.*

Messrs. Allen, Hohenemser and O'Riordon, and invited guests.

\*Program is approved in principle by Academic Board. Course listings are subject to final approval by that body.

**235b. BIOLOGICAL SYSTEMS AND WATER POLLUTION CONTROL.**

An attempt to deal with those problems associated with water pollution that are amenable to solution through the application of concepts and approaches of the biological sciences. The participants do not have to be biology majors, but will be expected to be literate in one or more of the scientific disciplines. Permission of instructor required. (The course is the same as Biology 235b.)

*Four semester hours.*

Mr. Reynolds.

**250. SPECIAL TOPICS IN TECHNOLOGY AND MAN.**

Independent readings and/or experimental work.

*Variable credit.*

Staff.

**270. HONORS IN TECHNOLOGY AND MAN.**

Supervised research leading to an undergraduate thesis.

*Variable credit.*

Staff.

# Visual and Performing Arts

## Music

**FACULTY**

Relly Raffman, A.M., *George N. and Selma U. Jeppson, Professor of Music,*  
*Department Chairman*

Wesley M. Fuller, M.Mu., *Associate Professor of Music*

Gerald R. Castonguay, A.M., M.Mu., *Assistant Professor of Music*

Susan Clickner, B.M., *Assistant Professor (affiliate) of Voice*

Evelyn Fuller, M.Mu., *Assistant Professor (affiliate) of Piano*

Virginia Leguia, M.S., *Assistant Professor (affiliate) of Flute*

James Ross, M.M., *Lecturer in Music*

Allan Mueller, *Affiliate in Piano*

James Skinger, *Affiliate in Guitar*

**UNDERGRADUATE PROGRAM**

The department offers courses designed to teach students how to listen to music intelligently, to develop a comprehension of music on its own terms and to acquaint students with representative works from various periods of music history.

The music major includes the following courses:

*Prerequisite:* Music 121a and b (to be taken in the Freshman year and passed with a minimum grade of B-).

*Theory:* 122a, 123b, 124a, 125b.

*Music History:* 12a and 112a; 13b and 113b; 14a and 114a; 15b and 115b; 17b or 4 semester hours credit in 117.

*Related areas:* a one-semester course in Fine Arts, Theatre Art or Film Studies; or a one-semester course in Esthetics.

A keyboard proficiency examination must be passed not later than the beginning of the junior year. As a senior, the music major must elect eight semester hours of tutorial work in one or more of the following areas: Music History (118), Composition (128), or Theory (138). As a substitute for this requirement an emphasis in performance may be arranged (in consultation with the department chairman) no later than the beginning of the junior year. In addition, all majors must satisfactorily complete 36 hours outside of Philosophy 16a (Esthetics), courses in Visual and Performing arts, and Literature.

Individual instruction in flute, guitar, piano, violin and voice will be offered during the 1972-73 academic year. Payment for lessons is made by the semester: \$70.00 for half-hour lesson per week. \$140.00 for hour lesson per week.

Arrangements for lessons should be made at the Music office during the registration period. Practice rooms are available without charge.

## COURSES

### 10a. INTRODUCTION TO MUSIC.

Designed for the non-major, this course is a prerequisite for entrance into all Music History or Survey Courses. No credit towards the major allowed. Open to freshmen. Repeated second semester.

*Four semester hours.*

Staff.

### 110a. INTRODUCTION TO MUSIC.

Special topics in music pedagogy. For majors only.

*One semester hour.*

Staff.

### 11a. SURVEY OF MUSICAL STYLE.

Designed for the non-major, the survey deals with the study of selected works of the major periods in Western Music from the early chant to the present. Prerequisite: 10a.

*Four semester hours.*

Staff.

### 121a. FUNDAMENTALS OF MUSIC.

Notation, ear-training, sight-singing and elementary melodic and harmonic organization.

*Four semester hours.*

Mr. Raffman.

### 121b. PRIMARY THEORY.

Open to freshmen. Prerequisite: 121a or consent of instructor.

*Four semester hours.*

Mr. Raffman.

### 12a. MEDIEVAL AND RENAISSANCE PERIODS.

A survey of music before 1600. Prerequisite: 10a or 121a. Offered in alternate years.

*Three semester hours.*

Mr. Castonguay.

### 112a. SPECIAL TOPICS IN MEDIEVAL AND RENAISSANCE MUSIC.

Independent study. Required of all music majors, but open to anyone concurrently enrolled in 12a.

*One semester hour.*

Staff.

### 122a. THEORY: MODAL COUNTERPOINT.

Offered in alternate years. Prerequisite: 121b.

*Four semester hours.*

Mr. Fuller.

**13b. BAROQUE PERIOD.**

A survey of music from 1600 to 1750. Offered in alternate years. Prerequisite: 10a or 121a.

*Three semester hours.*

Mr. Castonguay.

**113b. SPECIAL TOPICS IN BAROQUE MUSIC.**

Independent study. Required of all Music Majors, but open to anyone concurrently enrolled in 13b.

*One semester hour.*

Staff.

**123b. THEORY: 18th-CENTURY COUNTERPOINT.**

Prerequisite: 121b. Offered in alternate years.

*Four semester hours.*

Mr. Raffman.

**14a. CLASSICAL AND ROMANTIC PERIODS.**

Not offered, 1972-73.

A survey of music from 1750 to 1900. Offered in alternate years. Prerequisite: 10a or 121a.

*Three semester hours.*

Mr. Castonguay.

**114a. SPECIAL TOPICS IN CLASSICAL AND ROMANTIC MUSIC.**

Not offered, 1972-73.

Independent study. Required of all Music Majors, but open to anyone concurrently enrolled in 14a.

*One semester hour.*

Staff.

**124a. THEORY: 19th-CENTURY PRACTICE.**

Not offered, 1972-73.

Prerequisite: 121b. Offered in alternate years.

*Four semester hours.*

Mr. Raffman.

**15b. TWENTIETH-CENTURY MUSIC.**

Not offered, 1972-73.

A survey of early 20th-century masterworks. Representative composers: Debussy, Ravel, Prokofiev, Stravinsky, Bartok, Hindemith, Schoenberg, Berg and Webern. Offered in alternate years. Prerequisite: 10a or 121a.

*Three semester hours.*

Mr. Raffman.

**115b. SPECIAL TOPICS IN 20th-CENTURY MUSIC.**

Not offered, 1972-73.

Independent study. Required of all music majors, but open to anyone concurrently enrolled in 15b.

*One semester hour.*

Staff.

**125b. THEORY: 20th-CENTURY PRACTICE.**

Not offered, 1972-73.

Prerequisite: 124b. Offered in alternate years.

*Four semester hours.*

Mr. Raffman and Mr. Fuller.

**16b. CHAMBER MUSIC.**

Not offered, 1972-73.

A survey of selected works of the major composers in the field of chamber music from Haydn to Stravinsky. Trips to concerts in the surrounding area will be made whenever feasible. Offered in alternate years. Prerequisite: 10a or 121a.

*Four semester hours.*

Mr. Castonguay.

**17b. OPERA.**

With the help of translated librettos, recordings and selected readings, a study is made of a group of operas representing all periods of music history, with emphasis on the many solutions to the



combination of music and drama. Prerequisite: 10a or 121a. Offered in alternate years.  
*Four semester hours.*

Mr. Fuller.

# 117. CONCERT CHOIR.

Prerequisite: Audition and permission of instructor.

*One semester hour per semester.*

Mr. Fuller.

# 18. PRIVATE INSTRUCTION IN INSTRUMENTS AND VOICE.

Academic credit of from one to four points per semester may be arranged for students majoring in music according to the particular program of instruction undertaken. Non-majors may register for one point credit per semester (half-hour lesson per week—instrumental; one hour per week—voice); prerequisite for credit: successful completion of Music 121a. Offered in 1972-73: flute, guitar, piano, violin and voice. Arrangements for lessons must be made through the Music Department at the time of registration.

Staff.

# 19a. INTRODUCTION TO NON-WESTERN MUSIC.

Not offered, 1972-73.

Music of Cultures not of the Western European tradition are studied. Specific countries considered will vary, but music of India, Japan, Africa, and China is among those included. Offered in alternate years. Prerequisite: 10a or 121a. For consortium: a music history or theory course.

*Four semester hours.*

Mr. Fuller.

# 19b. MUSIC OF THE AVANT GARDE.

Innovations and developments of the earlier years of the 20th-century are examined in the works of the recent past: extended serial techniques, aleatory, electronic and computer music, neo-dadaism and multi-media. Offered in alternate years. Prerequisite: 15b or permission of instructor.

*Three semester hours.*

Mr. Fuller.

# 119b. SPECIAL TOPICS: ELECTRONIC MUSIC (STUDIO).

Concurrent registration in 19b required. Prerequisite: permission of the instructor. Offered in alternate years.

*One semester hour.*

Mr. Fuller and Mr. Raffman.

# 120a. HISTORY OF JAZZ: SEMINAR.

Offered in alternate years.

Prerequisite: 10a or 121a.

*Two semester hours.*

Mr. Raffman.

# 130a. JAZZ WORKSHOP.

Prerequisite: permission of instructor. Those entering the workshop must also register in 120a and are expected to have had practical experience in jazz performance. Offered in alternate years.

*Two semester hours.*

Mr. Raffman.

# 118. SENIOR TUTORIAL IN MUSIC HISTORY.

*Four semester hours each semester.*

Staff.

# 128. SENIOR TUTORIAL IN COMPOSITION.

*Four semester hours each semester.*

Staff.

## 138. SENIOR TUTORIAL IN MUSIC THEORY.

*Four semester hours each semester.*

Staff.

## Fine Arts

### FACULTY

Donald Krueger, M.F.A., *Associate Professor of Fine Arts; Associate Chairman of Fine Arts*

Samuel P. Cowardin, III, Ph.D., *Associate Professor of Fine Arts*

Sante Graziani, M.F.A., *Associate Professor (affiliate) of Fine Arts*

Peter M. Barnett, Ph.D., *Assistant Professor of Fine Arts*

### UNDERGRADUATE PROGRAM

Courses in fine arts are designed to foster understanding and sensitivity in the visual arts through direct contact with the materials of art or the study of artistic achievement in a variety of areas and periods. To implement these related goals, the department offers two plans for the major in fine arts, the one emphasizing studio work and the other art history.

The studio major is carried out primarily at the School of the Worcester Art Museum under a cooperative arrangement which has been in force since 1950. Students electing this plan must complete a minimum of 40 semester hours in studio courses above the introductory level, as defined by the Department, and 8 hours in art history (normally Fine Arts 11), as well as 8 hours in related courses or fields. They are advised, depending upon the seriousness of their professional interest in art, to elect studio courses beyond the required minimum, but in no case more than 64 semester hours. Clark University students enrolled in courses at the School of the Worcester Art Museum are expected to observe the attendance regulations in force at that institution and, so far as possible, its calendar. *Candidates for admission to Clark University who are reasonably sure they will embark upon the studio major should, at the time of application, submit about a dozen color slides representative of their work in as wide a range of media as possible. Slides should be mailed direct to The Clerk of the School of the Worcester Art Museum, 55 Salisbury Street, Worcester, Massachusetts 01608.*

Admission to the major stressing art history requires at least a B in Fine Arts 11 (or an equivalent course) and staff approval. Eligible students must complete 24 semester hours in art history beyond the introductory level, 16 semester hours in studio courses, 8 semester hours in related courses or fields, and a semester tutorial in the senior year. Majors are required to enroll in a one-semester-hour special topics course concurrently with each course in art history above the introductory level.

*Related areas are:* film studies, music, theatre arts, and Philosophy 16a (Esthetics). Students under either major plan must take at least 36 hours outside of courses in literature and the areas designated above as related.

### COURSES

#### 11. INTRODUCTION TO WESTERN ART.

Following a brief introductory section, the course treats significant works of architecture, sculpture, and painting in the light of their times. Open to freshmen.

*Four semester hours each semester.*

Mr. Cowardin, Mr. Barnett.

## 12b. SURVEY OF PAINTING.

A general introduction to the art of painting, covering a wide range of examples from East and West. Open to freshmen. May not be counted in addition to Fine Arts 11.

*Three semester hours.*

Mr. Cowardin.

## 99b. SENIOR TUTORIAL IN ART HISTORY.

*Four semester hours.*

Staff.

## 115b. SELECTED SUBJECTS IN MEDIEVAL ART.

*Three semester hours.*

Mr. Cowardin.

## 119. SPECIAL TOPICS IN MEDIEVAL ART.

Independent study. Required of majors enrolled in 115b.

*One semester hour.*

Staff.

## 120a. (formerly 15a.) ITALIAN RENAISSANCE ART: 15th CENTURY.

Offered in alternate years.

*Three semester hours.*

Mr. Cowardin.

## 121b. (formerly 15b.) ITALIAN RENAISSANCE ART: 16th CENTURY.

Offered in alternate years.

*Three semester hours.*

Mr. Cowardin.

## 122b. (formerly 151b.) MICHELANGELO AND THE HIGH RENAISSANCE.

Not offered, 1972-73.

Concentrates on Michelangelo's work in architecture, sculpture and painting, taking into account personal, religious, intellectual, and political influences in his life. His style will be viewed in relation to the Renaissance background as well as the Mannerist trends of the sixteenth century. Offered irregularly.

*Three semester hours.*

Mr. Cowardin.

## 129. SPECIAL TOPICS IN RENAISSANCE ART.

Independent study. Required of majors enrolled in any 120 series course.

*One semester hour.*

Staff.

## 130a. (formerly 16a.) BAROQUE PAINTING: 17th CENTURY.

Not offered, 1972-73.

The course will deal with the principal masters of European painting in the seventeenth century. It will emphasize close visual analysis of particular works, in order to isolate the expressive intention of each artist, as reflected in devices and techniques he employs. There will be a secondary emphasis on the social circumstances which underlie the broad range of national styles. Offered in alternate years.

*Three semester hours.*

Mr. Barnett.

## 131b. (formerly 16b.) ROCOCO AND ROMANTIC PAINTING: 18th and 19th CENTURIES.

Not offered, 1972-73.

The course is a continuation of the above, but the emphasis will be reversed. There will be a primary preoccupation with relationships between the art of the period and the social circumstances which produced it. There will be an attempt to relate events in painting both to political and social events

and to parallel currents in the arts in general. Discussion will cover the broad social and philosophical questions raised by the painting examined.

*Three semester hours.*

Mr. Barnett.

#### 139. SPECIAL TOPICS IN BAROQUE AND ROCOCO ART.

Independent study. Required of majors enrolled in 130a and 131b.

*One semester hour.*

Staff.

#### 140a. (formerly 18a.) MODERN ART: 19th CENTURY.

Coverage from the French Revolution through the post-impressionist period, with special attention to the redefinition of art, its relation to reality and to society.

*Three semester hours.*

Mr. Barnett.

#### 141b. (formerly 18b.) MODERN ART: 20th CENTURY.

A continuation of the above through the contemporary period.

*Three semester hours.*

Mr. Barnett.

#### 149. SPECIAL TOPICS IN MODERN ART.

Independent study. Required of majors enrolled in either 140a or 141b.

*One semester hour.*

Staff.

#### 150a. (formerly 19a.) INTRODUCTION TO ORIENTAL ART: ANCIENT NEAR EAST AND INDIA.

Not offered, 1972-73.

Offered in alternate years.

*Three semester hours.*

Mr. Cowardin.

#### 151b. (formerly 19b.) INTRODUCTION TO ORIENTAL ART: CHINA AND JAPAN.

Not offered, 1972-73.

Offered in alternate years.

*Three semester hours.*

Mr. Cowardin.

#### 159. SPECIAL TOPICS IN ORIENTAL ART.

Independent study. Required of majors enrolled in either 150a or 151b.

*One semester hour.*

Staff.

#### 160a. (formerly 120) ELEMENTS OF ARCHITECTURE.

A non-chronological treatment of architectural elements. Divided into two segments, the first a theoretical discussion of topics such as space, function, structure and movement, the second a conceptual approach to design, involving students in their own designing. Offered in alternate years.

*Three semester hours.*

Mr. Barnett.

#### 161b. (formerly 121) MODERN ARCHITECTURE.

Architecture of the 19th and 20th centuries, with a strong emphasis on the principal figures of the modern movement, and on developments in urban design and theory.

*Three semester hours.*

Mr. Barnett.



165b. GRAPHICS.

A view of graphic art both historically and technically with special attention on the response of graphic media to the aesthetic needs of the age in which it appears. First-hand acquaintance with materials and techniques will complement class material. Offered in alternate years.

*Three semester hours.*

Mr. Barnett.

169. SPECIAL TOPICS.

Independent study. Required of majors enrolled in any 160 series course.

*One semester hour.*

Staff.

170a. VISUAL ARTS WORKSHOP.

A studio course on campus, designed to introduce the student to the nature of visual language and the creative process and to develop abilities for original creative thought and action. Basic studio problems, primarily two-dimensional, in organization, color relationships, design and communication, and analytical studies, through graphic means, of form and space. Work in addition to the regularly scheduled six studio hours will be required. Open to freshmen. Materials fee.

*Four semester hours.*

Mr. Kreuger.

171b. VISUAL ARTS WORKSHOP.

A continuation of 170a. to include the study of depth and plastic illusion and explorations of basic three-dimensional structural principles and practice. 170a. is not prerequisite but is recommended. Open to freshmen. Materials fee.

*Four semester hours.*

Mr. Kreuger.

172a. VISUAL STUDIES.

A studio course stressing individual development of expressive and communicative visual arts skills. Independent study in traditional, contemporary and experimental forms and materials is encouraged and individual projects may be undertaken by the student with special interests or abilities. 170a, 171b, or the equivalent are recommended as preparation. Enrollment by permission of the instructor. Materials fee.

*Four semester hours.*

Mr. Kreuger.

173b. VISUAL STUDIES.

A continuation of 172a. Materials fee.

*Four semester hours.*

Mr. Kreuger.

190. (formerly 110, 111) DRAWING AND PAINTING I.

Given at the School of the Worcester Art Museum. Open only to Clark freshmen or upperclassmen who have been admitted to the studio art major. Indivisible course.

*Four semester hours each semester.*

Museum School Staff.

199.

General designation for all courses at the School of the Worcester Art Museum beyond DRAWING AND PAINTING I (Fine Arts 190). Ordinarily open only to majors.

*Four semester hours each semester.*

Museum School Staff.

# Theatre Art

## PARTICIPATING FACULTY

Neil R. Schroeder, Ph.D., *Associate Professor of Theatre Art and English;  
Associate Chairman of Theatre Art, Clark University*

Victor Becker, M.F.A., *Instructor in Theatre Art, College of the Holy Cross*

Edward J. Herson, M.A., *Lecturer in Theatre Art, Director of the Division of  
Theatre Art, College of the Holy Cross*

Donald W. Ilko, Ph.D., *Assistant Professor of Theatre Art, College of the Holy  
Cross*

Zeev Raviv, D.F.A., *Visiting Associate Professor of Theatre Art and Hebrew Lan-  
guage and Literature, Clark University*

## UNDERGRADUATE PROGRAM

The program in Theatre Art is offered through the Worcester Consortium for Higher Education. It is designed to give students both practical and scholarly experience in all phases of theatre. Courses are open to qualified undergraduates who are willing to devote the time and energy which are necessary for their completion. They are intended to develop theatre artists with a sound humanistic education and to prepare those who are interested for graduate training in educational and professional theatre.

In many cases, students who take courses in theatre will be expected as part of their course work to participate in productions of the Theatre Art Program at Clark University and the Fenwick Theatre at Holy Cross. Any student may apply for an acting or technical position in the plays of the annual season at Clark or Holy Cross by contacting Professor Neil Schroeder at Clark or Mr. Edward Herson at Holy Cross.

*Registration in any course in Theatre Art may be made only by permission unless otherwise stated in the Course Announcements for each semester. Clark students who wish to take courses in the field should obtain permission for all courses which require it from Mr. Schroeder. Entering freshmen who plan to take courses should see Mr. Schroeder before they register for their first year.*

All Theatre Art courses are one-semester in length. Many are offered at Holy Cross. In most cases, transportation will be supplied by the Worcester Consortium bus.

*The General Program.* Through the Worcester Consortium and inter-departmentally at Clark, courses are available in the following areas: acting, directing, technical theatre, design, theatre history and criticism, and dramatic literature. Students who wish to try or test their skills in any of these areas on an elective basis are welcome to apply.

*The Theatre Art "Minor" or Double Major.* Students who wish to design a minor or double major in Theatre Art are welcome to do so under the direction of Mr. Schroeder. Each program will be designed to meet the individual student's specific needs. While some may wish to develop a program independent of other academic concerns, others may wish to integrate their program with other disciplines such as Music, Fine Arts, Film, English, Modern Languages and Literatures, Philosophy, Psychology, or Education.

*The Theatre Art Major.* For those who are interested, a major in Theatre Art is available which trains students in the fundamentals of theatre and prepares them for further training and experience. Students may concentrate in one of the following areas: acting, acting and directing, technical theatre and design, theatre history and criticism, dramatic literature, or, if practical, an area of the student's own choice.

There are no specific course requirements prescribed for the major; each student's program will be designed according to his specific interests under the direction of Mr. Schroeder. In general, however, the major will consist of a minimum of approximately thirty hours of courses in Theatre Art and twenty hours of courses in related fields. Usually each major will be required to take at least one basic course in each of the following: acting, directing, technical theatre and design, plus several courses in theatre history, criticism, and dramatic literature, and several advanced courses in the area of the student's concentration. Theatre Art majors should plan their programs early, for many of the fundamental courses should be taken before the junior year.

## COURSES

*The following courses are taught at Clark University. Unless otherwise specified in the Course Announcement for each semester, students must obtain permission to enter each course from Mr. Schroeder.*

### 88a,b. DIRECTED READINGS.

A sequence of structured readings on a given topic approved and directly supervised by the instructor. Prerequisite: consent of instructor.

*One to four semester hours.*

Staff.

### 89a,b. SPECIAL PROJECTS.

Independent research on a particular problem, or an original creative project, directly supervised by the instructor. Prerequisite: consent of instructor.

*One to four semester hours.*

Staff.

### 101a,b. BASIC ACTING I.

An introduction to the actor's skills, the course will consist of a series of improvisations, theatre games and exercises, and selected scenes from plays in which the basic elements of acting – the processes involved in creative imagination, improvisation and spontaneity, and the interaction between voice, body, and emotion – will be stressed. No prerequisite; open to experienced as well as inexperienced actors.

*Four semester hours.*

Staff.

### 102a,b. BASIC ACTING II.

A continuation of Basic Acting I. Prerequisite: Theatre Art 101 or permission of instructor.

*Four semester hours.*

Staff.

### 103a,b. BASIC ACTING III.

Further training in the basic elements of acting and fundamentals of role preparation and interpretation. Prerequisite: two semesters of acting.

*Four semester hours.*

Staff.

### 104a,b. BASIC ACTING IV.

A continuation of Basic Acting III. Prerequisite: Theatre Art 103 or permission of instructor.

*Four semester hours.*

Staff.

**107a,b. SPEECH CLINIC FOR ACTORS I.**

An applied phonetic approach to speech and articulation for actors. The fundamentals of voice and articulation will be studied, with a focus on speech for the stage and the correction of regional dialects and idiosyncracies.

*One semester hour.*

Mr. Schroeder.

**108a,b. SPEECH CLINIC FOR ACTORS II.**

A continuation of Speech Clinic I, this course will concentrate on the study of native and foreign dialects for acting purposes. Prerequisite: Theatre Art 107 or consent of instructor.

*One semester hour.*

Mr. Schroeder.

**151a,b. THEATRE IN WESTERN CIVILIZATION I:  
THEATRE FROM THE GREEKS TO THE RENAISSANCE.****152a,b. THEATRE IN WESTERN CIVILIZATION II:  
THEATRE OF THE EIGHTEENTH AND NINETEENTH CENTURIES IN EUROPE.****153a,b. THEATRE IN WESTERN CIVILIZATION III:  
THE AMERICAN THEATRE: MODERN AND CONTEMPORARY THEATRE.**

A three-semester sequence of courses which surveys Western theatre from its development in early Greece to the present. Included will be a study of types of theatres, techniques of theatre architecture, and the methods, techniques, and results of stage design and costume in their historical context; a survey of acting, directing, and production methods and their interaction with the audience; the emergence of the national theatres of Western civilization and their historical and cultural significance; and a survey of the major eras of dramatic literature and criticism as well as other theatrical genres (mime, ballet, opera, etc.).

*Four semester hours each semester.*

Mr. Schroeder.

**201a,b. ADVANCED TUTORIAL IN ACTING I.****202a,b. ADVANCED TUTORIAL IN ACTING II.**

Special study and coaching in acting problems for experienced actors only. Prerequisite: four semesters of acting and/or consent of staff.

*Four semester hours each semester.*

Staff.

**241a,b. TUTORIAL IN DIRECTING I.****242a,b. TUTORIAL IN DIRECTING II.**

Special study and coaching in problems of directing for experienced directors only. Prerequisite: two semesters of directing and/or consent of staff.

*Four semester hours each semester.*

Staff.

*The following courses are taught at Holy Cross. All courses taught at Holy Cross are numbered 199; differentiation is by title only. Permission from Mr. Schroeder is necessary to enter each course.*

**199. BASIC ACTING SKILLS I.**

Study and intensive practice of the basic techniques of producing good voice and speech, relaxation,



breath control, phonation, and resonance for vocal tone, proper formation of the sounds of English and correction of regional accent. Laboratory in stage movement.

*Four semester hours.*

Mr. Ilko.

#### 199. BASIC ACTING SKILLS II.

Further development of the techniques learned in Basic Acting Skills I. Elementary work in the interpretation of a role. Prerequisite: Basic Acting Skills I.

*Four semester hours.*

Mr. Ilko.

#### 199. IMPROVISATIONS FOR THE THEATRE I.

#### 199. IMPROVISATIONS FOR THE THEATRE II.

A graduated system of problems and theatre games designed to train the student to free himself for concentration and spontaneous effort to create a situation imaginatively and to play a role in it.

*Four semester hours each semester.*

Mr. Herson.

#### 199. STYLES OF ACTING.

Analysis of the varieties of practice of the actor's art from the Greeks to the present day and of the historical, social, and aesthetic causes of the various styles. Each student will be required to perform in a sample of each of the principal styles. In addition, each student will be required to submit papers on a chosen specialty or specialties. Prerequisite: two semesters of acting.

*Four semester hours.*

Mr. Ilko.

#### 199. READERS' THEATRE.

Theory and practice of interpreting the meaning of the printed word, and a development of skill in the reading of drama.

*Four semester hours.*

Mr. Herson.

#### 199. SCENE STUDY I.

Development to the level of class performance of roles in scenes and one-act plays; assigned research; analysis of a major role scene by scene. Prerequisites: Styles of Acting and/or permission of instructor.

*Four semester hours.*

Mr. Ilko.

#### 199. SCENE STUDY II.

Students prepare scenes for class and/or laboratory performance and criticism. Each student keeps a written record of the research, materials, and techniques used in preparing the roles he plays and a critical diary of rehearsals, performance, and class evaluation of performance. Prerequisites: Scene Study I and/or permission of instructor.

*Four semester hours.*

Mr. Ilko.

#### 199. BASIC TECHNICAL THEATRE PRACTICE.

Classroom instruction in the theories and techniques of the building, painting, and lighting of stage settings; organization and operation of production crews; the fundamentals of make-up.

*Four semester hours.*

Mr. Becker.

#### 199. APPLICATION OF DESIGN PRINCIPLES.

*Four semester hours.*

Mr. Becker.

**199. INTRODUCTION TO STAGE DESIGN: THEORY.**

A course intended to acquaint the student with the basic steps involved in the creation of stage settings. The course will include a general discussion of design methods such as ground plan, compositional elevation, color theory, and stage lighting.

*Four semester hours.*

Mr. Becker.

**199. INTRODUCTION TO STAGE DESIGN: TECHNIQUE.**

An introductory course in design for the theatre, exclusively for students who have a strong interest in the visual aspects of production and are planning to continue the study of stage design. Prerequisites or corequisites: one course in drawing and painting, and/or submission of sketches or similar materials which demonstrate some talent in the graphic arts; Basic Technical Theatre Practice (may be taken in the same semester).

*Four semester hours.*

Mr. Becker.

**199. HISTORICAL STYLES OF SCENE DESIGN.**

Design problems will be selected from classics of dramatic literature which represent important epochs in theatre history. Prerequisites: Introduction to Stage Design: Technique; Art History; Theatre in Western Civilization I, II, or III.

*Four semester hours.*

Mr. Becker.

**199. THEATRICAL STYLES OF STAGE DESIGN.**

Design problems from many different types of theatrical entertainments such as opera, ballet, modern dance, musical comedy, and circus. Prerequisite: Introduction to Stage Design: Technique.

*Four semester hours.*

Mr. Becker.

**199. INTRODUCTION TO PLAY DIRECTING.**

Theory of translation of the play script into theatrical imagery. The basic techniques of play selection, casting, scheduling and conducting rehearsals, composition, picturization, movement, rhythm, and pantomimic dramatization. Prerequisites: two semesters of acting and Basic Technical Theatre Practice.

*Four semester hours.*

Mr. Herson.

**199. ADVANCED PLAY DIRECTING I.**

Special topics and problems in the theory and practice of directing. Prerequisite: Introduction to Play Directing.

*Four semester hours.*

Mr. Herson.

**199. ADVANCED PLAY DIRECTING II.**

A continuation of Advanced Play Directing I.

*Four semester hours.*

Mr. Herson.

**199. THE THEATRICAL EXPERIENCE.**

Principles for the critical perception of theatre art. Primarily for non-theatre students.

*Four semester hours.*

Mr. Becker.

**199. THEATRE TUTORIAL.**

Directed study in selected theatre topics. May be taken a maximum of three times, with a different topic each time. Prerequisite: permission of instructor and of the Director of the Division.

*Four semester hours.*

Staff.

## Film Studies

### FACULTY

Anthony W. Hodgkinson, *Associate Professor of Film Studies; Associate Chairman of Film Studies Program*

### UNDERGRADUATE PROGRAM

The program in Film Studies is designed to enable the student to acquire a critical understanding and appreciation of our youngest art. A full understanding of Film involves two related activities: (1) the viewing, discussion and evaluation of a large number of significant works; and (2) initial attempts, through simple film and/or video production exercises, to express oneself in a technically demanding medium.

The latter, expressive function may at present best be explored through courses offered through the Consortium at Worcester State College, or in the University's Summer School. The emphasis of current courses in the Film Studies Program is on the viewing/discussion/assessment level; they are designed to have particular reference to the historical and social impact of Film.

There is no major offered in Film Studies at the present time.

### COURSES

#### 10a. ELEMENTS OF FILM.

A survey of the varied techniques used in the making of all screen communications (film, television, video): the invention of the language; silent film narrative; editing; music, speech and sound; color; varied motion; kinestasis; cine-verite; artificial film; lecture/screenings; term papers and readings. Repeated second semester. Prerequisite to all Film Studies courses. Open to Freshmen.

*Four semester hours.*

Mr. Hodgkinson.

#### 11a. ASPECTS OF FILM HISTORY.

A series of lecture/screenings in which various facets of the 75 years of cinema will be explored: National genres of cinema; The American film; Documentary film; etc. Analytical term papers and readings. Prerequisite: 10a.

*Four semester hours.*

Mr. Hodgkinson.

#### 12b. FILM AND SOCIETY.

A thematic exploration of the ways the cinema has reflected/affected its contemporary society. Content will vary each time course is offered. Examples: The City on Film; The Hollywood Heroine; Humor; Crime; etc. Lecture/screenings; analytical term papers and readings. Prerequisite: 10a.

*Four semester hours.*

Mr. Hodgkinson.

**13a. GREAT FILM DIRECTORS.**

Not offered, 1972-73.

A series of lecture/screenings in which the canon of work of various significant directors will be studied and assessed. Analytical term papers and readings. Prerequisite: 10a.

*Four semester hours.*

Mr. Hodgkinson.

**14b. THEORIES OF FILM.**

Not offered, 1972-73.

A study of some of the aesthetic and social theories of Film. Krakauer, Dickinson, Huaco, etc. Prerequisite: 10a and two of 11a, 12b or 13a. Analytical term papers.

*Four semester hours.*

Mr. Hodgkinson.

**100a. ELEMENTARY FILM PRODUCTION.**

A practical workshop in Super-8mm film production. Student work will be analyzed and criticized. Prerequisite: 10a. Limited to 10 students. (This course is offered in the Consortium at Worcester State College and is the same as W.S.C.'s ME 340.)

*Four semester hours.*

**110b. ADVANCED FILM PRODUCTION.**

Students will be required to submit treatments and scripts for a Super-8mm sound film of their own choice. Work will be supervised and criticized throughout. Prerequisite: 100a and instructor's approval. (This course is offered in the Consortium at Worcester State College.)

*Four semester hours.*

## Faculty

Members of the faculty and officers of instruction for 1972-73 are listed alphabetically with their titles, degrees and years at Clark University. Persons no longer on the faculty but who served during the previous year are included also.

### *President*

GLENN W. FERGUSON, J.D., President and Adjunct Professor of Government. B.A., Cornell University, 1950; M.B.A., 1951; J.D., University of Pittsburgh, 1957. (1970- )

### *Emeriti*

HOWARD B. JEFFERSON, Ph.D., LL.D., L.H.D., Litt.D., President, Emeritus; A.B., Denison University, 1923; Ph.D., Yale University, 1929; LL.D., Denison University, 1948, Hillsdale College, 1952, Northwestern University, 1958; L.H.D., Colgate University, 1951, Assumption College, 1956; Litt.D., College of the Holy Cross, 1962; L.H.D., Clark University, 1967; LL.D., Emerson College, 1968. (1946-67)



- CLAUDE W. BARLOW, Ph.D., Professor of Classics, Emeritus. (1947-72)  
 JESSE L. BULLOCK, Ph.D., Professor of Chemistry, Emeritus. (1926-59)  
 GUY H. BURNHAM, A.M., Instructor in Geography and Cartographer, Emeritus. (1922-66)  
 LYDIA P. COLBY, B.S., Registrar, Emeritus. (1932-66)  
 TAMARA DEMBO, Ph.D., Professor of Psychology, Emeritus. (1953-72)  
 GEORGE E. HARGEST, M.B.A., Associate Professor of Economics, Emeritus. (1942-71)  
 ROBERT S. ILLINGWORTH, A.M., Ed.M., Professor of Speech and Drama, Emeritus. (1931-58)  
 FREDERICK W. KILLIAN, LL.B., Associate Professor of Sociology, Emeritus. (1947-70)  
 VERNON JONES, Ph.D., Professor of Educational Psychology, Emeritus. (1926-68)  
 H. DONALDSON JORDAN, Ph.D., L.H.D., Professor of English History, Emeritus. (1931-67)  
 DWIGHT E. LEE, Ph.D., L.H.D., Jacob and Frances Hiatt Professor of European History, Dean of the Graduate School, Emeritus. (1927-67)  
 JAMES A. MAXWELL, Ph.D., L.H.D., Professor of Economics, Emeritus. (1924-67)  
 RAYMOND E. MURPHY, Ph.D., Professor of Economic Geography, Emeritus. (1946-68)  
 THEODORE NICOL, Ph.D., Associate Professor of Romance Languages, Emeritus. (1946-69)  
 PERCY M. ROOPE, Ph.D., Professor of Physics, Emeritus. (1921-62)  
 SAMUEL VAN VALKENBURG, Ph.D., LL.D., Professor of Geography, Emeritus. (1927-29, 1932-62)

### *Faculty and Officers of Instruction*

- DAVID J. ABESHOUSE, Ph.D., Assistant Professor of Physics (part-time). B.S., Massachusetts Institute of Technology, 1962; Ph.D., Boston University, 1970. (1971)  
 VERNON AHMADJIAN, Ph.D., Professor of Botany, Dean of the Graduate School. A.B., Clark University, 1952; A.M., 1956; Ph.D., Harvard University, 1960. (1959-68; 1969- )  
 PHYLLIS C. ALBERT, Ph.D., Visiting Lecturer in Jewish History. B.A., Tufts University, 1961; M.A., Brandeis University, 1964; Ph.D., 1972. (1972- )  
 HARRY C. ALLEN, JR., Ph.D., Professor of Chemistry, Chemistry Department Chairman, B.S., Northeastern University, 1948; Sc.M., Brown University, 1949; Ph.D., University of Washington, 1951. (1969- )  
 DONALD H. AMARAL, Ed.M., Coach and Coordinator of Intramurals and Recreation. B.S., Boston University, 1961; Ed.M., 1965. (1971- )  
 JAMES D. ANDERSON, M.A., Lecturer in Romance Languages. B.A., Brooklyn College, 1957; M.A., Florida State University, 1959. (1971- )  
 KARL O.E. ANDERSON, Ph.D., Professor of English. A.B., Harvard University, 1927; A.M., 1928; Ph.D., 1942. (1945- )  
 MARGARET E. ANDERSON-OLIVO, Ph.D., Assistant Professor (Affiliate) of Physiology. B.A., Augustana College, 1963; Ph.D. Stanford University, 1967. (1972- )  
 ROY S. ANDERSON, Ph.D., Professor of Physics, Dean of the Graduate School. A.B., Clark University, 1943; A.M., Dartmouth College, 1948; Ph.D., Duke University, 1951. (1960- )  
 KARL J.R. ARNDT, Ph.D., Professor of German. A.M., Washington University, 1928; Ph.D., The Johns Hopkins University, 1933. (1950- )  
 ROBERT W. BAKER, Ph.D., Professor of Psychology, Director, Psychological Services Center. A.B., Hobart College, 1947; Ph.D., Clark University, 1953. (1954- )  
 GEORGE A. BALKO, JR., M.B.A., Assistant Professor of Business Administration. M.E., Stevens Institute of Technology, 1947; M.B.A., New York University, 1952. (1956- )

- RAYMOND E. BARBERA, Ph.D., Professor of Romance Languages. A.B., Brooklyn College, 1947; A.M., University of Arizona, 1948; Doctor en Letras, Universidad Nacional de Mexico, 1949; Ph.D., University of Wisconsin, 1958. (1953- )
- CLAUDE W. BARLOW, Ph.D., Professor of Classics. A.B., Amherst College, 1928; A.M., Indiana University, 1930; Ph.D., Yale University, 1935. (1947-72)
- PETER M. BARNETT, M.A., Instructor in Fine Arts. M.A., Harvard University, 1965. (1970- )
- REDMOND J. BARNETT, A.M., Visiting Assistant Professor in American History. A.B., Harvard University, 1965; A.M., 1966. (1972- )
- STEPHEN BARON, Ph.D., Assistant Professor of Mathematics. B.A., McGill University, 1959; M.S. Rensselaer Polytechnic Institute, 1962; Ph.D., McGill University, 1967. (1968-72)
- TILTON M. BARRON, B.L.S., Librarian. A.B., Colorado College, 1937; B.L.S., Columbia University School of Library Service, 1940. (1954- )
- THOMAS C. BARROW, Ph.D., Professor of American History. B.A., Harvard University, 1952; M.A., 1954; Ph.D., 1961. (1967- )
- JAMES F. BEARD, JR., Ph.D., Professor of English. A.B., Columbia College, 1940; A.M., Columbia University, 1941; Ph.D., Princeton University, 1949. (1955- )
- ROBERT N. BECK, Ph.D., Professor of Philosophy, Philosophy Department Chairman. A.B., Clark University, 1947; A.M., Boston University, 1948; Ph.D., 1950. (1948-67; 1968- )
- ARTHUR BERGERON, Ed.M., Clinical Instructor in Education. B.S., Worcester State College, 1962; Ed.M., 1966. (1971- )
- JUTTA BERNSTEIN, M.A., Lecturer in German. M.A., Case Western Reserve University, 1969. (1971- )
- LEONARD BERRY, Ph.D., Professor of Geography. B.Sc., University of Bristol, 1951; M.Sc., 1956; Ph.D., 1969. (1969- )
- ROGER BIBACE, Ph.D., Professor of Psychology, Director of Psychological Services Center. A.B., University of British Columbia, 1949; Ph.D., Clark University, 1957. (1957- )
- GEORGE A. BILLIAS, Ph.D., Professor of American History. A.B., Bates College, 1948; A.M., Columbia University, 1949; Ph.D., 1958. (1962- )
- JAMES M. BLAUT, Ph.D., Professor of Geography. B.S., University of Chicago, 1950; M.S., Louisiana State University, 1954; Ph.D., 1958. (1966-72)
- CHARLES S. BLINDERMAN, Ph.D., Professor of English. A.B., New York University, 1952; A.M., 1953; Ph.D., University of Indiana, 1957. (1962- )
- RICHARD P. BOARDMAN, Ed.D., Assistant Professor of Educational Sociology. B.A., Dartmouth College, 1962; M.A., University of Chicago, 1963; Ed.D., Columbia University, 1968. (1970- )
- DANIEL R. BORG, Ph.D., Associate Professor of European History. A.B., Gustavus Adolphus College, 1953; A.M., Yale University, 1957; Ph.D., 1963. (1961- )
- MARTYN J. BOWDEN, Ph.D., Associate Professor of Geography. B.A., University of London, 1957; M.A., University of Nebraska, 1959; Ph.D., University of California, Berkeley, 1967. (1964- )
- ROBERT N. BOYES, Ph.D., Assistant Professor (affiliate) of Biology. B.Sc., University of Toronto, 1962; M.Sc., University of Toronto, 1964; Ph.D., University of London, 1967. (1969- )
- DAVID R.R. BRALEY, Ed.M., Clinical Instructor in Education. B.S., Worcester State College, 1962; Ed.M., 1967. (1971- )
- DAEG S. BRENNER, Ph.D., Associate Professor of Chemistry. B.S., Rensselaer Polytechnic Institute, 1960; Ph.D., Massachusetts Institute of Technology, 1964. (1967- )
- JOHN J. BRINK, Ph.D., Associate Professor of Biochemistry. B.Sc., University of Orange Free State, 1955; B.Sc. (Hons.), University of Witwatersrand, 1956; Ph.D., University of Vermont, 1962. (1966- )

- DONALD M. BROVERMAN, Ph.D., Professor (affiliate) of Psychology. A.B., Union College, 1952; M.A., Clark University, 1956; Ph.D., 1958. (1964- )
- NELSON M. BUTTERS, Ph.D., Affiliate Research Associate in Psychology. A.B., Boston University, 1960; M.A., Clark University, 1962; Ph.D., 1964. (1971- )
- ANNE BUTTIMER, SISTER MARY ANNETTE, O.P., Ph.D., Assistant Professor of Geography. B.A., National University of Ireland, 1957; M.A., 1959; Ph.D., University of Washington, 1965. (1971- )
- GEORGE CAMOUGIS, Ph.D., Associate Professor (affiliate) of Physiology. B.S., Tufts College, 1952; A.M., Harvard University, 1957; Ph.D., 1958. (1958- )
- ROBERT F. CAMPBELL, Ph.D., Professor of American History, A.B., Yale University, 1939; A.M., Columbia University, 1940; Ph.D., 1947. (1946-57; 1960- )
- WILLIAM H. CARTER, JR., Ph.D., Professor of English, English Department Chairman. A.B., Middlebury College, 1936; A.M., Harvard University, 1938; Ph.D., 1951. (1949- )
- THOMAS Z. CASSEL, Ph.D., Visiting Assistant Professor of Psychology. B.A., University of Miami, 1964; Ph.D., Duke University, 1971. (1972- )
- GERALD R. CASTONGUAY, M.A., Assistant Professor of Music. B.Mu., Boston University, 1959; M.Mu., Hartt College of Music, 1963; M.A., Harvard University, 1965. (1970- )
- ROBERT A. CIOTTONI, Ph.D., Visiting Lecturer in Psychology. B.A., Seton Hall University, 1963; M.A., University of Rochester, 1965; Ph.D., 1967. (1971- )
- LEONARD E. CIRILLO, Ph.D., Associate Professor of Psychology. B.A., City College of New York, 1958; M.A., Clark University, 1962; Ph.D., 1965. (1968- )
- PAUL S. CLARKSON, J.D., Curator of Special Collections. A.B., Clark University, 1925; J.D., Harvard University, 1928. (1969- )
- SUSAN CLICKNER, B.Mu., Affiliate in Music. B.Mu. in Voice, Indiana University, 1955; Diploma, Curtis Institute of Music, 1959. (1970- )
- MORRIS H. COHEN, Ph.D., Professor of Government. A.B., University of Chicago, 1939; Ph.D., 1950. (1947- )
- SAUL B. COHEN, Ph.D., Professor of Geography, Director, School of Geography. A.B., Harvard University, 1947; A.M., 1950; Ph.D., 1955. (1965- )
- VITTORIO CORBO, Ph.D., Assistant Professor of Economics. Ph.D., Massachusetts Institute of Technology, 1971. (1972- )
- GERARD T. CORCORAN, M.A., Registrar. B.A., University of Connecticut, 1957; M.A., 1961. (1966- )
- CATHERINE H. COSMAN, M.A., Lecturer in Russian. B.A., Grinnell College, 1967; M.A., Brown University, 1969. (1972- )
- BRUCE C. COULL, Ph.D., Assistant Professor of Biology; B.S., Moravian College, 1964; M.A., Lehigh University, 1966; Ph.D., 1968. (1970- )
- SAMUEL P. COWARDIN III, Ph.D., Associate Professor of Fine Arts. A.B., Harvard University, 1943; A.M., 1948; Ph.D., 1963. (1949- )
- WARD J. CROMER, Ph.D., Affiliate Research Associate in Psychology. A.B., Oberlin College, 1962; M.A., Clark University, 1964; Ph.D., 1968. (1971- )
- JESSIE C. CUNNINGHAM, Ph.D., Associate Professor of English. Ph.B., University of Chicago, 1948; A.M., 1952; Ph.D., University of Chicago, 1969. (1957- )
- JOSEPH C. CURTIS, Ph.D., Professor of Zoology. B.A., Cornell University, 1951; Ph.D., Brown University, 1960. (1963- )
- JOHN A. DAVIES, Ph.D., Associate Professor of Physics. B.S., University of Maryland, 1953; M.S., 1954; Ph.D., 1960. (1963- )



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- TAMARA DEMBO, Ph.D., Professor of Psychology, Ph.D., University of Berlin, 1930. (1953-72)
- SHANNON T. DEVOE, Ph.D., Affiliate Research Associate in Psychology. B.A., Bennington College, 1961; M.A., Clark University, 1963; Ph.D., 1969. (1971- )
- JOSEPH de RIVERA, Ph.D., Associate Professor of Psychology. B.A., Yale University, 1953; Ph.D., Stanford University, 1961. (1970- )
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- MARVIN A. D'LUGO, Ph.D., Assistant Professor of Spanish. B.A., Brooklyn College, 1965; M.A., University of Illinois, 1967; Ph.D., 1969. (1972- )
- THOMAS J. DOLPHIN, A.B., Director of The Evening College. A.B., Rutgers University, 1951. (1957- )
- SERGE DURILIN, JR., M.A., Assistant Professor of Russian. (1970- )
- JAMES S. EDWARDS, A.M., Associate Professor of German. A.B., Brown University, 1936; A.M., 1938. (1947-died, 1972)
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- GALE H. NIGROSH, M.A.T., Instructor in French. B.A., Barnard College, 1968; M.A.T., Clark University, 1969. (1969- )
- RUDOLPH F. NUNNEMACHER, Ph.D., Professor of Zoology, Biology Department Chairman. B.S., Kenyon College, 1934; A.M., Harvard University, 1935; Ph.D., 1938. (1939- )
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- TIMOTHY O'RIORDAN, Ph.D., Visiting Associate Professor of Geography. M.A., University of Edinburgh, 1963; M.S., Cornell University, 1965; Ph.D., University of Cambridge, 1967. (1972- )
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- DAVID J. OTT, Ph.D., Professor of Economics. B.A., North Texas State College, 1955; Ph.D., University of Maryland, 1961. (1969- )
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- VICTOR H. PENTLARGE, M.D., Psychiatry Consultant to the Psychological Services Center. B.A., Harvard University, 1949; M.D., Harvard Medical School, 1953. (1958- )
- FERNAND G. PERON, Ph.D., Professor (affiliate) of Biochemistry, Director of Steroid Training Program. B.Sc., Sir George Williams University, 1946; M.Sc., McGill University, 1950; Ph.D., 1953. (1967- )
- LAWRENCE PETERSON, Ph.D., Affiliate in Clinical Training. B.A., Lehigh University, 1965; M.S., University of Pittsburgh, 1967; Ph.D., 1970. (1971- )
- DONALD E. PIERSON, Ph.D., Assistant Professor (affiliate) of Education. A.B., Princeton University, 1964; Ed.M., Harvard University, 1965; Ph.D., Harvard University, 1970. (1970- )
- RICHARD W. PIERSON, A.M., Director of Admissions. A.B., Marietta College, 1956; A.M., Clark University, 1961. (1965- )
- STANLEY J. POREDA, JR., Ph.D., Assistant Professor of Mathematics. B.S., Stevens Institute of Technology, 1965; Ph.D., University of Maryland, 1970. (1970- )
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- ALEXANDER J. RADZIK, Ed.M., Liaison and Clinical Instructor in Education. A.B., Clark University, 1946; Ed.M., Boston University, 1949. (1969- )
- RELLY RAFFMAN, A.M., George N. and Selma U. Jeppson Professor of Music, Visual and Performing Arts Department Chairman. A.B., Dartmouth College, 1943; A.M., Columbia University, 1949. (1954- )



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- MARSHALL SKLARE, Ph.D., Visiting Professor of Sociology. (1970-71)
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- JACQUES VONËCHE, Ph.D., Associate Professor of Psychology. A.B., L'Institut Supérieur; M.A., University of Louvain (Belgium), Institute of Psychology, 1960; Ph.D., 1966. (1968- )
- THEODORE H. VON LAUE, Ph.D., Jacob and Frances Hiatt Professor of History, History Department Chairman. B.A., Princeton University, 1939; Ph.D., 1944. (1970- )
- SEYMOUR WAPNER, Ph.D., G. Stanley Hall Professor of Genetic Psychology, Psychology Department Chairman. A.B., New York University, 1939; A.M., University of Michigan, 1940; Ph.D., 1943. (1948- )
- HENRY J. WARMAN, Ph.D., Professor of Geography. B.S. in Ed., Bloomsburg State Teachers College, 1932; Ed.M., Temple University, 1938; Ph.D., Clark University, 1945. (1943- )
- WEN-YANG WEN, Ph.D., Associate Professor of Chemistry. B.S., National Taiwan University, 1953; Ph.D., University of Pittsburgh, 1958. (1962- )
- DOUGLASS A. WHITE, M.A., Lecturer in Chinese Literature. B.A., Harvard University, 1964; M.A., Taiwan University, 1968; M.A., Harvard University, 1970. (1972- )
- JEFFERSON A. WHITE, Ph.D., Associate Professor of Philosophy. B.A., Baylor University, 1952; B.D., Yale University, 1957; A.M., 1960; Ph.D., 1964. (1961-72)
- JOHN WHITESIDE, Ph.D., Assistant Professor of Psychology. B.A., Brown University, 1968; Ph.D., University of Rochester, 1972. (1972- )
- MORTON WIENER, Ph.D., Professor of Psychology. B.S., College of the City of New York, 1949; M.S., 1950; Ph.D., University of Rochester, 1953. (1957- )
- DONALD E. WISE, Ph.D., Assistant Professor of Economics and Business Administration. B.A., University of California, Los Angeles, 1966; Ph.D., Claremont College, 1970. (1969- )
- PETER H. WOLFF, M.D., Visiting Lecturer in Psychology. M.D., University of Chicago, 1950. (1961- )
- WALTER E. WRIGHT, Ph.D., Assistant Professor of Philosophy, Dean of the College. B.A., Yale University, 1965; M.A., Vanderbilt University, 1967; Ph.D., 1971. (1968- )
- DAVID ZERN, Ph.D., Assistant Professor of Education and Adjunct Assistant Professor of Psychology. B.A., Harvard University, 1962; Ed.M., 1964; Ph.D., 1969. (1971- )
- ALLAN M. ZWICKEL, Ph.D., Associate Professor of Chemistry. A.B., Cornell University, 1956; Ph.D., University of Chicago, 1959. (1961- )

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- Ahmadjian (*chairman*); Barron, Borg, Carter, Ferguson (*ex officio*), Johansen. *Conflict of Interest*
- Kasperson (*chairman*); Cohn\*, Kaplan, McEvoy, Newman\*, M. Savage, Schroeder, Thompson, Topkin, Wilkerson\*, Wittenberg\*, Wright. *January Term*



|                                     |                                                                                                                       |
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| John T. Miller, LL.D. (1970- )           | Washington, D.C.   |
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## Academic Calendar

### 1972

|                                                    |                                                                        |
|----------------------------------------------------|------------------------------------------------------------------------|
| <i>Tuesday, September 5</i>                        | New students arrive on campus.                                         |
| <i>Wednesday to Friday,<br/>September 6-8</i>      | Orientation and registration<br>for new students.                      |
| <i>Thursday and Friday<br/>September 7 &amp; 8</i> | Registration for continuing and<br>returning students.                 |
| <i>Monday, September 11</i>                        | Classes begin.                                                         |
| <i>Friday, November 17</i>                         | Thanksgiving recess begins<br>at end of classes.                       |
| <i>Monday, November 27</i>                         | Classes resume.                                                        |
| <i>Friday, December 8</i>                          | Preliminary January Term Registration<br>for continuing students only. |
| <i>Friday, December 15</i>                         | End of first semester classes.                                         |
| <i>Monday, December 18</i>                         | Exams begin.                                                           |
| <i>Thursday, December 21</i>                       | Last day of exams.                                                     |
| <i>Friday, December 22</i>                         | Christmas recess begins.                                               |

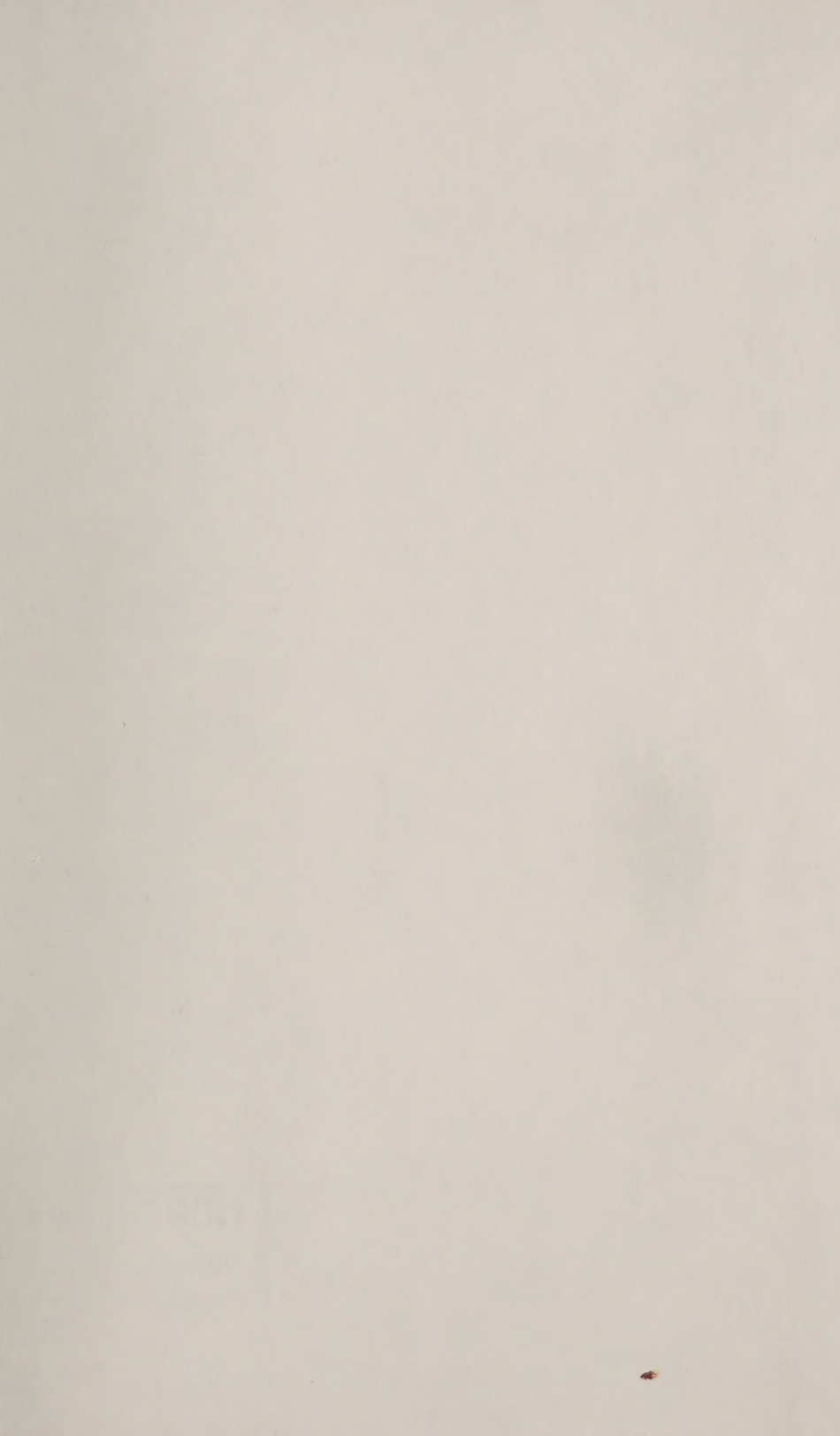
### 1973

|                             |                                                                         |
|-----------------------------|-------------------------------------------------------------------------|
| <i>Tuesday, January 2</i>   | January Term begins; Registration for<br>new students for January Term. |
| <i>Friday, January 26</i>   | January Term ends.                                                      |
| <i>Thursday, February 1</i> | Orientation for new students.                                           |
| <i>Friday, February 2</i>   | Registration.                                                           |
| <i>Monday, February 5</i>   | Classes begin.                                                          |
| <i>Friday, March 23</i>     | Mid-semester recess begins<br>at end of classes.                        |
| <i>Monday, April 2</i>      | Classes resume.                                                         |
| <i>Friday, May 11</i>       | End of second semester classes.                                         |
| <i>Monday, May 14</i>       | Exams begin.                                                            |
| <i>Thursday, May 17</i>     | Last day of exams.                                                      |
| <i>Sunday, May 27</i>       | Commencement Day                                                        |









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